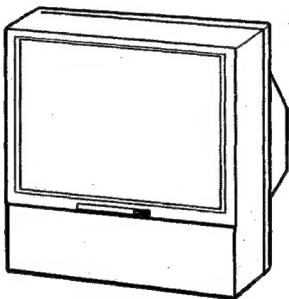


# JVC

## SERVICE MANUAL

REAR PROJECTION TELEVISION

### AV-48PRO AV-48PROX



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# SAFETY PRECAUTIONS

**WARNING:** BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" INSTRUCTIONS BELOW.

## X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is  $\text{A}$  kV at zero beam current (minimum brightness) under a  $\text{C}$  VAC power source. The high voltage must not, under any circumstances, exceed  $\text{B}$  kV.
2. The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
3. Some part in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

Refer to table 1 for high voltage  $\text{A}$ ,  $\text{B}$  & AC voltage  $\text{C}$ .  
(See SETTING & ADJUSTING DATA on page 41)

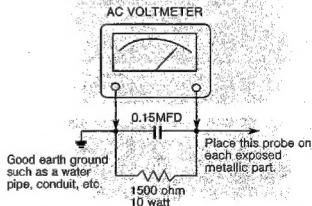
Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual. It is recommended that the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.

## SAFETY PRECAUTION

**WARNING :** Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

1. An Isolation Transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.
4. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, screwheads, metal overlays, control shafts etc. to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a 220V AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner:

Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 mfd, AC type capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and 0.15 mfd capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.3 volts RMS. This corresponds to 0.2 milliamp. AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



## PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list.

Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-ray radiation or other hazards.

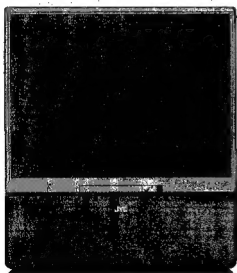
# OPERATING INSTRUCTIONS

# JVC



## REAR PROJECTION TELEVISION

# AV-48PRO AV-48PROX



## INSTRUCTIONS

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## INTRODUCTION

# Before Installation

## To identify your TV

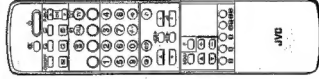
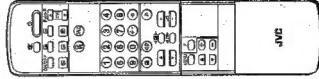
This manual applies to the two models described below and there are slight differences among them.

Before operating the TV, please check:

— the model number of your TV.

— what is equipped with your TV according to the table below.

## Difference table

	Available	Available	Not equipped
Overview of the Remote Controller			

The instructions are given using the model with maximum functions.

## Features

### AV terminals for external equipment connection

- Three sets of video/audio inputs are located on the rear. The video/audio input 3 is located on the rear panel.
- Two S-VIDEO terminals on the rear (video/audio input 1 and 3) and one on the front (video/audio input 3).
- One set of monitor output terminals
- One set of fixed audio output terminals

### Selectable picture and selectable sound

Allows one-touch selection of your favourite picture quality and some quality among three preset pictures and one user-set mode.

### NO-CAN (BS) and German (BS) stereo/bilingual broadcasts receivable

Shows two different pictures on the screen simultaneously: a TV programme and the other from an external video source or another TV programme, with the two built-in UM7/UM7 TV tuners.

### Off-timer and ON-timer

Turns off the TV automatically and will turn it back on at a preset time.

### TELETEXT/FASSTEXT (AV-4PRG only)

**Auto-Power-Off**  
If a vacant channel is tuned on TV broadcast for a day is finished, the TV will automatically turn off after about 30 minutes. However, if the On-time is operating, it takes precedence. This Auto-Power-Off feature does not operate in the VIDEO or Data background OFF mode.

### No-Signal-Mute

When receiving a TV signal from the serial input (TV) which does not contain a video signal, the sound will be muted. This No-Signal-Mute feature does not operate in the blue background OFF mode.

## INTRODUCTION

## Installation

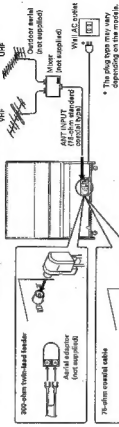
- **INSTALL** the unit in a room where direct light will not fall upon the screen. Total darkness or a reflection on the picture screen may cause eyestrain. Soft and indirect lighting is recommended for comfortable viewing.
- **AVOID** excessive heat and humidity, and the wall for proper ventilation.
- **AVOID** excessively warm locations to prevent possible damage to the cabinet or components.
- **RATED VOLTAGE:** AC 110 V ~ 240 V, 50/60 Hz.

### CAUTION:

Avoid displaying stationary images on your TV screen for an extended period of time. Stationary patterns generated by the background image or the picture tube, which are not permanently imprinted on the picture tube, This damage is not prevented by your warranty as it is the result of misuse. If you use your JVC rear projection television to display still images, it is recommended that you change the brightness and contrast settings. Never leave a picture display, computer display or videogame unattended.

### To connect the aerial

Outdoor reception of colour requires a good signal and will generally mean that an outdoor aerial must be used. The exact type and magnitude of the wall aerial will vary according to area. Your JVC dealer or service personnel can best advise you on which aerial to use in your area.



### Notes

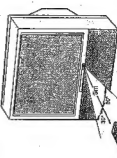
- When using an outdoor aerial, disconnect the leads of the indoor aerial, if connected, from the aerial terminal socket.
- Always use the 75-ohm coaxial cable to be used to eliminate interference and noise which may occur due to radio wave conditions.
- The aerial cable should not be bundled with the power cord and the like.

Using the ATT (attenuator) switch (See page 8.)  
When using the ATT switch, set the ATT switch to ON using a small screwdriver.

### To prepare the Remote Controller

#### Tip for remote operation

##### Effective range



#### 1 Remove the battery cover.



#### 2 Insert two size AAA batteries matching the + and - polarities of the battery to the + and - marks inside the battery compartment.

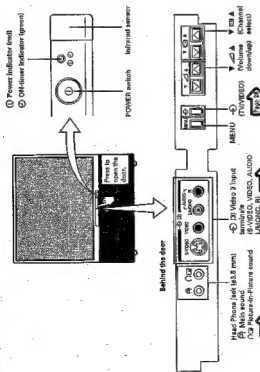


- The battery life should be about one year under normal use.
- When the Remote Controller will not be used for a long period of time, remove the batteries and store them in a cool, dry place.
- Do not throw the batteries into a fire. Dispose of used batteries in the specified manner.
- Do not short, dampen or disassemble the Remote Controller.

## INTRODUCTION

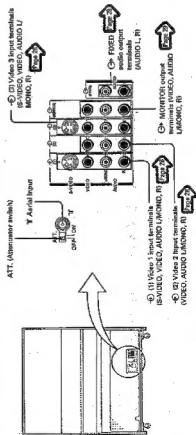
The following describes the name of each part of the TV and Remote Controller.

## Front

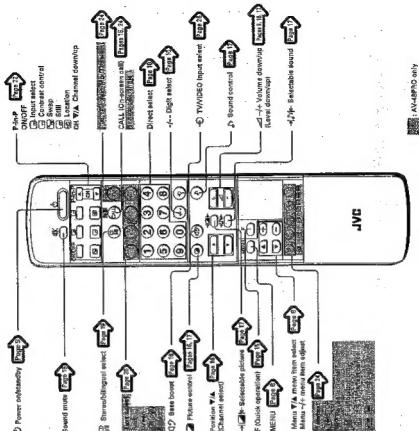


**Note**

**Back**



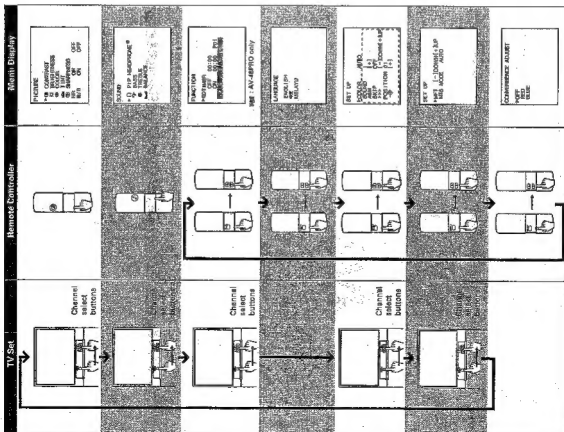
## Remote Controller



: AV-488AD only

# Menu Function

• Before watching the TV, please familiarize yourself with this method to use the menu function of this TV set.



Notes

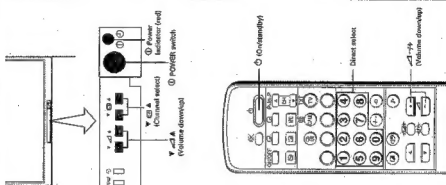
- Before setting or selecting (USER, ON, and) each item, use the MENU  $\rightarrow$  button.
- The  $\rightarrow$  button on the SET UP menu appears only when the TV set is in the menu mode.
- The  $\rightarrow$  button on the PICTURE menu appears only when the PICTURE function is activated.

# Turning the Power On/Off

• The following describes how to turn the TV on/off using the TV's main switch and the Remote Controller.

## To turn the power on/off

- 1** Press the POWER switch, the red power indicator lights up.
- 2** If no picture appears, press the  $\odot$  button on the Remote Controller.
- 3** Adjust the sound volume with the  $\triangleleft$   $\rightarrow$  buttons.
- 4** To switch to the standby mode, press the  $\odot$  button.
- 5** To turn off completely, press the POWER switch.









# Adjusting the Colour Convergence

- This projection TV uses three separate TV tubes: a red one, a green one, and a blue one. The red, green and blue images are projected onto the screen, where they converge to form a full colour picture. You can see a clear picture only when they converge correctly.
- When you use the TV for the first time, the colour convergence may not be correct. However, convergence may drift over time or if you move the TV. If you can see clear images on the screen, skip this procedure.

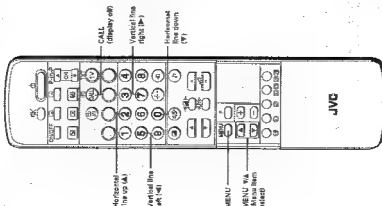
## To align the colour

### To check and align the colours

- Press the **MENU** button repeatedly to display the **CONVERGENCE ADJUST** screen.
- Press the **MENU** via buttons to move the cursor to "1" to "RED" or "BLUE". One vertical and one horizontal line appear.
- If you see separate coloured lines, you have to align the colours. Press the **CALL** button. The blue line is shifted, press the **MENU** via buttons to move the cursor (P) to "BLUE".
- Press the "2 Up" and "2 Right" buttons to converge the blue line into the green line.
- When you adjust the red line, press the **MENU** via buttons to move the cursor (P) to "RED". Then, repeat step 4.

### To end the convergence adjustment

- Press the **MENU** via buttons to move the cursor (P) to "OFF". The vertical and horizontal lines disappear.
- Press the **MENU** button or the **CALL** button.



# Convenient Picture and Sound Controls

## Sound muting and on-screen calling

### To mute the sound

The muting function is convenient when you need to pay attention to surrounding sounds, answer a phone call, receive a visitor, etc.

- Press the **CALL** button. The **CALL** mark appears on the screen.

- To restore the sound, press the **CALL** button again.

### To retain the on-screen display

Generally, the position number and the **CALL** (mute) mark disappear after the muting operation. However, if you turn off the TV within 8 seconds since the position number has been changed.

- To retain the position number on the screen, press the **CALL** button.

- To return to the automatic-disappearing mode, press the **CALL** button again.

### To turn off the menu function display instantly

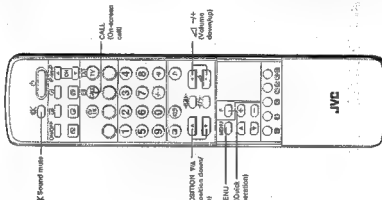
Generally, the menu function display (**FUNCTION**, **LANGUAGE**, **SET UP**) is retained for 15 seconds by the TV. However, if you want to turn off the display instantly, press the **CALL** button.

### To change position number rapidly

Press the **F** button and the **POSITION** via button simultaneously. The position number decreases or increases by 10.

### To change the volume rapidly

Press the **F** button and the **VOL** - or + button simultaneously. The volume changes rapidly.



# Convenient Picture and Sound Controls (continued)

## Picture noise reduction and blue background

### To reduce the picture noise

If the signal being received is weak and the picture is blurry, adjustment is required to improve the picture.



1 Press the **picture** button repeatedly to move the cursor **▶** to "NR".

2 Press the **▲/▼** buttons to select "ON".

To turn off the picture noise reduction  
Repeat steps 1 and 2 and select "NR OFF".

### To turn the screen blue

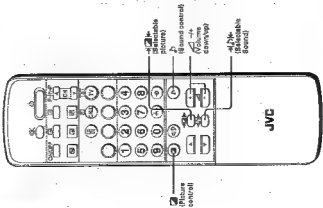
With the blue background function ON, the TV will automatically turn blue when no signal is being received.



1 Press the **picture** button repeatedly to move the cursor **▶** to "BB".

2 Press the **▲/▼** buttons to select "ON".

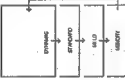
To turn off the blue background  
Repeat steps 1 and 2 above and select "BB OFF".



## Selectable picture and Selectable sound

### To select the picture mode

You can select the picture quality instantly among three preset modes and one user-set mode.



Press the **picture** button to select the desired picture quality.

DYNAMIC, STANDARD, MILD and MEMORY user-set can be selected explicitly.

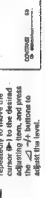
Picture quality you set	Picture quality you set
DYNAMIC	bright and dynamic picture
STANDARD	standard picture
MILD	soft and memory picture
MEMORY	the picture quality you set

To set the desired picture quality to the MEMORY position

1 Press the **picture** button. The picture control menu appears.



2 Press the **picture** button repeatedly to move the cursor **▶** to the desired adjusting item, and press the **▲/▼** buttons to adjust the level.

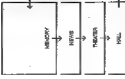


Picture quality you set	Picture quality you set
DYNAMIC	bright and dynamic picture
STANDARD	standard picture
MILD	soft and memory picture
MEMORY	the picture quality you set

The adjusted level is stored in the MEMORY position.

### To select the sound mode

You can select the sound quality instantly among three preset modes and one user-set mode.



Press the **sound** button to select the desired sound quality.

MEMORY (user-set), NEWS, THEATER and HALL can be selected explicitly.

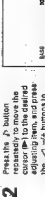
Sound quality you set	Sound quality you set
MEMORY	the sound quality you set
NEWS	news/dialogue
THEATER	a movie theater filled with a dynamic sound
HALL	a concert hall filled with a rich warm sound

To set the desired sound quality to the MEMORY position

1 Press the **sound** button. The sound control menu appears.



2 Press the **sound** button repeatedly to move the cursor **▶** to the desired adjusting item, and press the **▲/▼** buttons to adjust the level.



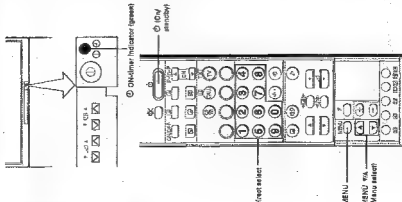
Sound quality you set	Sound quality you set
MEMORY	the sound quality you set
NEWS	news/dialogue
THEATER	a movie theater filled with a dynamic sound
HALL	a concert hall filled with a rich warm sound

The adjusted level is stored in the MEMORY position.



## Using Other Menus

## ON/OFF timer



If you enter an incorrect number while setting the ON/OFF timer, the TV will automatically switch to standby mode.

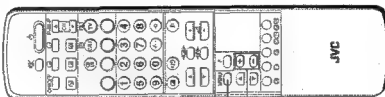
Note  
The maximum presettable time for the ON/OFF timer is 128h.

## Selecting the Language for the OSD (On-Screen Display)

## To select the language for the OSD

Use this function to select the language for the OSD in either English, Indonesian or Malay.

- 1 Press the MENU button repeatedly to call up the OSD. The selection menu is displayed on the screen.
- 2 Press the MENU button to select the desired language. The selected language is displayed in magenta and the screen menu is automatically displayed in that language.



MENU  
MENU/VA  
Language select

## To turn off the TV automatically (OFF timer)

With the OFF timer, the TV will automatically switch to standby mode at a preset time.

- 1 Press the MENU button repeatedly to call up the OSD. The selection menu is displayed on the screen. Press the MENU button to select OFF OFF (OFF timer).
- 2 Press the direct select buttons to set the amount of time. The TV will automatically go into standby mode.  
Ex. 30 minutes:  
Press 3, 0, and 0.  
Once the preset time has elapsed, the TV will automatically go into standby mode.

## To turn on the TV automatically (ON timer)

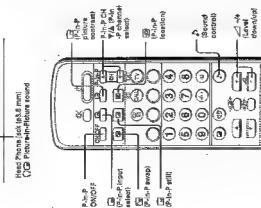
With the ON timer, the TV will automatically turn on at a preset time.

- 1 Press the MENU button repeatedly to call up the OSD. The selection menu is displayed on the screen. Press the MENU button to select ON ON (ON timer).
- 2 Press the direct select buttons to set the amount of time. The TV will automatically turn on at a preset time.  
Ex. 30 minutes:  
Press 3, 0, and 0.  
Once the preset time has elapsed, the TV will automatically turn on.

3 Press the ON button to switch the TV to standby mode. At the preset time, the TV will turn on automatically.

Note  
To cancel the ON timer, press the POWER button to turn off the TV or in step 2 above set the ON time and position number to 0000.

- To display a sub-picture:**



- If there are no signals for the main and sub-pictures or if the signals are weak, the Picture-In-Picture function may not work correctly.
- If the colour systems of the main picture and sub-picture are different, the size of the sub-picture may slightly differ and the quality of the sub-picture may be impaired.
- The Teletext cannot be displayed as the sub-picture. (Teletext is featured only for AX-48PRO.)

10

- 1 Turn on the TV and select the desired programme.
- 2 Press the **PAUSE** button. A sub-picture will appear on the screen.
- 3 Press the **PAUSE** button again. The sub-picture will disappear and the programme for the sub-picture.
- 4 Turn off the sub-picture, by pressing the **PAUSE** button.



To display a picture from an external source as a

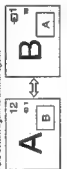
**sub-picture**  Connect external source equipment for the sub-picture.  
For connection, see page 28.)

- 1** Turn on the TV and select the desired programme.
- 2** Press the **Play/ON/OFF** button to display a sub-picture.
- 3** Press the **[OK]** button repeatedly to select the input for the sub-picture. A TV picture, the picture of the video input or the picture of the video input 2 (**F-21**) will appear.  
F-21 Video Input 2  
F-22 and video input 3  
F-23 will appear cyclically.





## Various Picture-In-Picture operations

To switch the main and sub-pictures , press the  button when a sub-picture is displayed. The main and sub-pictures are switched. Press the button again to switch again.



**Note** If the main picture is in the Teletext mode, the Teletext mode will be cancelled by pressing the  button.

To change the position of the sub-picture  press the  button repeatedly when a sub-picture is displayed. The display position of the sub-picture will change in order ① to ③.



*To display a frozen frame of the main picture as a*

**sub-picture** When no sub-picture is displayed, press the  button. The main picture displayed at that moment will appear as a still picture with a red frame in the sub-picture position. To turn off the sub-picture, press the P-IN-P button.



To freeze the sub-picture ☒

Press the  button when a sub-picture is displayed. The sub-picture will be a still picture. To return to a moving picture, press the  button again.

[illegible]

- 1** Press the  button to display on the right.

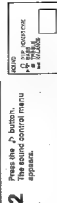


- Press the  $\Delta$   $\nabla$  button to adjust the level.

**Note:** The TV screen illustration above is for models with the TELETEXT feature. Models without that feature display **PIP CONTRAST**.

*To listen to the sound of sub-picture*

- 1** Put a headphone plug (not supplied) in the rca headphone jack on the TV set.



- 3** Press the  button repeatedly to move the cursor () to **"PIP HEADPHONE"** and press the  button to adjust the level.



- Output from the **Q2** headphone jack is monoaural.
- When a stereo/bilingual broadcast is received on the main picture, output from the **Q2** headphone jack is the **△** (monoaural) sound if you press the **Q2** button to switch between the main and sub pictures.
- There is no output from the **Q2** headphone jack when the **PUP** function is not activated.

# Viewing Normal Text/ Use of the Teletext Buttons

- The TV is capable of showing both normal text and Teletext information on the screen.
- The Teletext buttons on the remote controller have the same function for both.

## To view normal text

### To display a page of text

- 1 Select a TV station with the text service desired.
- 2 Press the **TEXT/TV** button.  
The index page will appear.
- 3 Enter the 3-digit page number using the direct select buttons.  
Ex. Page 10: Press 1, 0, and 0.

### To superimpose the text on a TV picture (E)

Press the **TEXT/TV** button again.

### To return to the normal TV mode (E)

Press the **TEXT/TV** button repeatedly until the text disappears.

### To display an index/initial page (CALL/E)

Press the **CALL/E** button if no page number is displayed. The index page (FAST mode) or the present page (NORMAL mode) will appear. Press again to turn off the page display.  
For preselecting an initial page, see page 27.

### To go to the previous or next page (POSITION wa.)

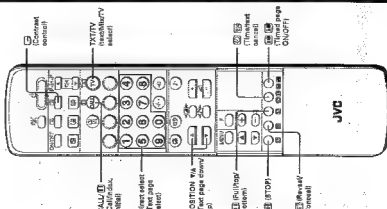
Press the **POSITION** button to switch to the previous page. Press the **POSITION** button to switch to the next page. The pages will cyclically change from P-10 to P-0.

### To enlarge the text display also (E)

Press the **E** button (once) to enlarge the top half of the page. Press again to enlarge the bottom half of the page, and again to return to the normal size.

### To stop a page of text (E)

When a page is divided into sub pages, it is convenient to stop the page. Press the **STOP** button to stop the page. Press the **STOP** button to stop the page. Press again to release the stop mode.



## To view normal text (continued)

### To select a page while viewing a normal TV picture (E)

If you press the **CALL/E** button in the text mode, a normal TV picture will be displayed. Enter the desired 3-digit page number using the direct select buttons, and the selected number will appear on the screen.  
To view the selected page, press the **TEXT/TV** button.

### To display news flashes (E)

To view news flashes when they are broadcast, select the news flash page for the particular Teletext service (see the Teletext index page) and press the **CALL/E** button. The news flash page will appear. Press again to cancel the news flash display.

When the news flash display is canceled, the news flash is displayed. To change the channel, first press the **TEXT/TV** button to cancel the text mode.

### To reveal concealed text (E)

Some paper have sections that are concealed such as in the case of a newspaper. To reveal the concealed part, press the **CALL/E** button. Press again to conceal.

### To display the close (E)

To display the screen time on the screen while viewing the text, press the **CALL/E** button. Press again to turn off the time display.

### To adjust the contrast of the teletext picture

- 1 Press the **CALL/E** button to call up the display on the right.



- 2 Press the **CALL/E** button to adjust the level.

### To display an alarm caption at the desired time

If you want to display an alarm caption at a given time, proceed as follows.

- 1 Select the desired Teletext alarm page number and press the **CALL/E** button. The alarm page will appear on the screen.



- 2 Press the direct select buttons to enter the time when you want the alarm caption displayed. Ex. 11:00 PM: Press 1, 1, 0 and 0.



The character 'P' preceding the time digits will appear, changing the alarm page to set.

- 3 Press the **CALL/E** button to return to the normal TV picture.

At the preset time, the preset alarm caption page will be superimposed on a normal TV picture.



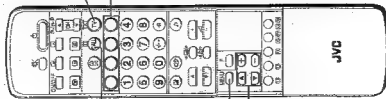
# Fastext and List function

(FASTEXT)

You can access any given topic shown on the screen simply by pressing the corresponding FASTEXT button on the Remote Controller.

In addition to the four pages, you can preset an initial page which will appear first each time you select the FASTEXT function.

## To view Fastext



## To select the FAST mode

When you select the FAST mode, four coloured prompts will appear at the bottom of the screen. The colours correspond to those of the text select buttons on the remote control. So, press the corresponding coloured button. Then, press the FAST button to select the FAST mode.

1 Select a TV station with the desired FASTEXT.

2 Press the MENU button repeatedly to call up the FUNCTION menu on the right.

3 Press the MENU button to move the cursor to "TEXT". Then, press the MENU button to select "FAST" (Fastext mode).

## To view Fastext

1 Press the TEXT/TV button to select the FAST mode. Four coloured prompts will appear at the bottom of the screen.

2 Press the TEXT/TV button to select the FAST mode. Four coloured prompts will appear at the bottom of the screen. The screen will switch to the selected page.

3 Repeat step 2 to switch to the next topic you want to view.

To return to the normal TV mode Press the TEXT/TV button twice.

Press the CALL/TV button to display an initial page.

## To preset and view the text pages in the LIST mode

### To select the LIST mode

1 Select a TV station with the TEXT in the desired LIST mode service.

2 Press the MENU button repeatedly to call up the FUNCTION menu on the right.

3 Press the MENU button to move the cursor to "TEXT". Then, press the MENU button to select "LIST" (LIST mode).

### To preset an initial page

1 Press the TEXT/TV button to select the LIST mode. The display on the right will appear.

2 Press the yellow text select button. Press is red will appear on the screen.

3 Press the yellow text select button to enter the 3-digit page number that you want to preset as an initial page. Press 2, 2, 2.

The selected page will turn to white and will be stored in memory.

Note Presettable is possible only for position numbers 1 through 9.

For position numbers 10 and higher, the initial page is preset to page 100, the LIST function does not correspond. Press the CALL/TV button to display an initial page.

### To preset desired pages

1 Press the green text select button.

The page number at the top of the screen will turn to purple.

2 Enter the 3-digit page number that you want to preset by using the direct select buttons, and press the green text select button. The page number will be stored in memory.

3 Repeat steps 1 and 2 to preset other three pages.

### To view the preset pages

Press the red text select button.

By pressing the red text select button, the preset page will appear optionally.

### Note

For position numbers 10 and higher, pages 100, 200, 300 cannot be preset. The LIST mode, you cannot change the presetting.

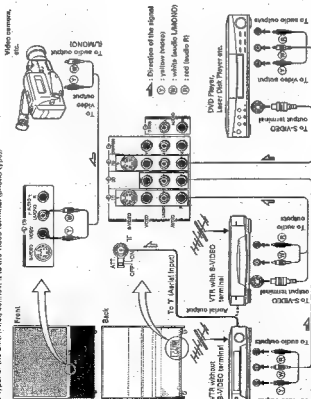
# External Equipment Connections

- The following describes how to use and connect the TV with other AV equipment. Refer to the owner's manual of the equipment to be connected as well.

## To connect video and audio equipment

You can connect video equipment such as a VTR and video camera to this TV and enjoy the high quality picture.

If your video equipment has an S-VIDEO output serial connect it to the S-VIDEO input terminal (special S-VIDEO type) of the unit. If not, connect it to the Video terminal (photo type).



### To select the input

Press the **◀** button on the TV set or the remote control repeatedly until you see the input you want to select.

- When the input you want to select is shown on the screen, press the **▶** button. The input you selected will be shown on the screen.
- Input 1: ① 1 ② 11 ③ Video 2
  - Input 2: ④ 2 ⑤ 12 ⑥ Video 3
  - Input 3: ⑦ 3 ⑧ 13 ⑨ Video 4
  - Input 4: ⑩ 4 ⑪ 14 ⑫ Video 5

To return to aerial input, press the **▶** button in display a TV picture with a position number.

### If the colour of video input is abnormal

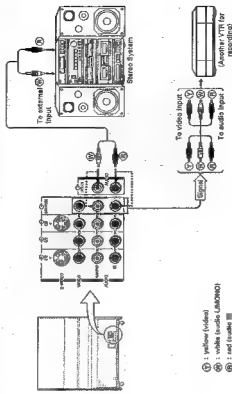
The colour system setting may be incorrect. Press the **MENU** button repeatedly to display the menu on the screen. Select the **COLOUR** item and select **"AUTO"** with the **MEMBER** button.

When the S-VIDEO terminal is used, the colour of the video input will be abnormal. When the S-VIDEO terminal is used, the colour of the video input will be abnormal.

- When the S-VIDEO terminal is used, the colour of the video input will be abnormal. When the S-VIDEO terminal is used, the colour of the video input will be abnormal.
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- When the S-VIDEO terminal is used, the colour of the video input will be abnormal. When the S-VIDEO terminal is used, the colour of the video input will be abnormal.

## To connect video and audio equipment (continued)

You can connect a stereo system to the MONITOR and S-VIDEO output terminals. In this case, the TV will enjoy a high-quality sound from the stereo system. The MONITOR output terminals output the video and audio signals being monitored on the TV. The output audio signal level is fixed.



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Note: TELETEXT signal cannot be output from the MONITOR (VIDEO) output terminal. (Teletext is featured only for AV-APPRO only)

# A Guide to Simple Problem Solving

- Before calling service personnel, please check the following chart for a possible cause to the trouble you are experiencing.

Problem	Solution
No sound	<ul style="list-style-type: none"> <li>Be sure the power cord is plugged in.</li> <li>Headphones may be plugged in.</li> </ul>
Poor colour/picture	<ul style="list-style-type: none"> <li>May be the misadjustment for contrast, colour and line.</li> </ul>
Spots appear on the screen.	<ul style="list-style-type: none"> <li>May be coming from cars, motorcycles, electric trains, high tension lines, neon signs, hair crystals, etc.</li> </ul>
Lines appear on the screen.	<ul style="list-style-type: none"> <li>May be coming from other TV receivers, personal computers, and TV games, as well as interference from radio station.</li> </ul>
Double or triple images	<ul style="list-style-type: none"> <li>May be due to broadcast waves reflected from mountains or buildings.</li> </ul>
Shaky picture	<ul style="list-style-type: none"> <li>Check if the direction of the aerial has changed because of strong wind, etc.</li> <li>Check if the direction of the aerial has changed.</li> <li>The battery may be exhausted.</li> <li>The batteries may be improperly installed.</li> </ul>
Remote Controller does not work.	

## The following are not failures

Problem	Solution
The cabinet clicks.	<ul style="list-style-type: none"> <li>The clicking is a cracking sound produced when the cabinet expands or contracts due to changes in the temperature. This will not affect the picture or sound.</li> </ul>
Unwarranted in colour sometimes develops in part of the screen.	<ul style="list-style-type: none"> <li>If the screen is set brightly, such unwarranted in colour may occur depending upon the nature of the picture. The proper colour can be restored by resetting the contrast. Consult your local dealer.</li> </ul>

## Broadcast Transmission Systems in Each Country

Country	System
Bahrain, Kuwait, Israel, Oman, Qatar, United Arab Emirates, Yemen, etc.	PAL
Indonesia, Malaysia, Singapore, Thailand, etc.	PAL
China, etc.	PAL
Hong Kong	PAL
India, Islamic Republic of Iran, Lebanon, Saudi Arabia, etc.	SECAM
Russian Federation, etc.	SECAM
Indonesia, etc.	NTSC
Indonesia, etc.	NTSC
Philippines, etc.	NTSC
Republic of the Congo, etc.	PAL
Republic of the Congo, etc.	PAL
Republic of the Congo, etc.	PAL
South Africa	NTSC
South America	NTSC
Chile, Colombia, etc.	NTSC

Notes: "PAL" and "DK" will be displayed as "BG" and "DK" on the screen. PAL, SECAM and 3500K are different colour signal broadcast transmission systems applicable to different countries. 4300K is used in special VHSs to playback NTSC recorded video tapes through PAL television.

13000K = NTSC 3.58 MHz, 4300K = NTSC 4.43 MHz

- Refer to the Specifications table on the back cover to find the receivable television systems for this TV.

# Safety Instructions and Maintenance

- Be sure to observe the following precautions to ensure safe use of this unit.

## Warning

When a malfunction occurs, or if smoke or a strange smell comes from the unit, turn off the power and remove the plug from the outlet immediately. If the trouble does not stop, contact a service technician. If you continue to use the unit in this condition, it may cause a fire or an electric shock.



Do not use the unit if there are any malfunctions, such as when there is an abnormal smell or sound coming from the unit. This may cause a fire or an electric shock. Turn off the power to the unit, remove the plug from the outlet immediately and contact a service technician for the required repair service.



Do not set on top of this unit any object or container that might spill liquids or small objects into this unit (house plant, cosmetics, small toys, metal objects, or drinking chemicals). When liquids are spilled or small items are dropped inside the unit, they may cause a fire or an electric shock. Turn off the power to the unit, remove the plug from the outlet immediately and contact a service technician. Be especially careful to prevent small children from inserting objects into the unit.



Do not insert objects (metal or paper) or pour water inside the unit through ventilation holes and other places. If these objects are inserted inside the unit, turn the power off, remove the plug from the outlet immediately and contact a service technician. Be especially careful that small children do not insert objects in the unit.



If the unit is dropped or the cabinet is damaged, turn the power off and remove the plug from the outlet immediately. It may cause a fire or an electric shock. Contact a service technician for inspection.



Do not repair, modify or disassemble the unit by yourself. It may cause a fire or an electric shock. Consult a service technician for inspection and repairs.



# Safety Instructions and Maintenance (continued)

## Warning

Always connect the plug to an electrical outlet equipped with 120V to 240V AC.  
Do not use the unit outside the specified voltage (110V to 240V AC) range.  
It may cause a fire or an electric shock.



Never watch television while driving or walking.  
This may cause a traffic accident or personal injury.



Do not place the unit in an unstable location such as on a shaky table, bed, or in a location subject to vibration.  
The unit may stop or fall down which may cause injury or damage.



Do not use the unit in locations exposed to high humidity levels such as in a bathroom or close to a humidifier.  
This may cause a fire or an electric shock.



Do not remove the rear panel, cabinet or cover.  
If a part containing high voltage which may cause electric shock.  
Contact a service technician for inspection, adjustment and repair of parts inside the unit.



Do not put back, modify, twist, bunch up or bend the cord or apply excessive force or tension to it.  
Do not place heavy objects on the cord or allow it to overheat as this may cause damage, fire or electric shock. Contact a service technician if the electric cord is damaged.



## Warning

If there is thunder or lightning, do not touch the antenna wire.  
You may suffer an electric shock.



When dust has collected on the electrical plug connector, remove the plug from the outlet and clean off the dust.  
This dust may cause a fire due to the reduced insulation of the plug.



## Caution

Be sure the insulation is correct.  
Do not use the antenna tubes on the unit.  
For example, do not use the unit in the following manner.  
• Do not place the unit so that it is lying upward, or on its side.  
• Do not place the unit into a closet or bookshelf where the unit is not ventilated.  
• Do not place the unit on a carpet or blanket.  
• Do not spread a tablecloth or curtain on top of the unit.  
The inside of the unit will get hot. If the ventilation holes are blocked, which may result in a fire.



Do not place the unit in locations subject to direct sunlight or high temperature (such as inside a closed vehicle).  
A fire may result when the inside temperature increases.



Do not place the unit near a stove where it will be exposed to oil, grease, or steam, or in a location where there is a large quantity of dust.  
This may cause a fire or electric shock.



# Safety Instructions and Maintenance

(continued)

## Caution

Do not place anything heavy on top of the unit. This may cause the unit to tip over, resulting in the unit falling over, dropping or causing an injury.



Always lock the castor wheels of the main unit. The main unit is equipped with castor wheels on the bottom. The unit may move or fall over and cause an injury if the castor wheels are not locked securely.



Install the color television in a horizontal, stable location. Install a stabilizer bar if necessary to ensure that the unit is secure. If the unit is not installed securely, it may lean or fall over and cause an injury.



## Precautions for moving the unit

When two or more people to move the television because it is heavy, be careful to follow the following instructions. When moving the television, be sure to remove the plug from the wall outlet and disconnect the antenna, connection line between other equipment, external connection line and any stabilizer bars. Fire or electric shock may result if the power cord is damaged.



When carrying the unit, be careful to hold it by the sides of the frame and the back of the screen.

## Usage Precautions

Be especially careful to handle the unit with small children to prevent them from climbing on top of the television. It may move, fall over, break, become damaged or cause an injury.



Do not pull on the electric cord when removing the plug from the wall outlet. Always hold the plug firmly when removing it. If the electric cord is yanked, the cord may become damaged and fire or electric shock may occur.



## Caution

Never touch or remove the electric cord plug with wet hands. This may cause electric shock.



Never place the main unit or electric cord near a heater. The surface of the cabinet or electrical cord may melt and result in fire or electric shock.



When the television will not be used for a long period of time, such as during vacation or travel, remove the power cord plug from the wall outlet. Fire may result if the insulation on the power cord is reduced by dust build-up.



Technical knowledge and expert time are required for the antenna installation. Contact a service technician for further information. - Select a safe location that is separated from the power supply line and install the unit securely. - Do not place the unit on top of other equipment or on a surface that may tilt down or droop. It may cause injury or electric shock accidents.

## Maintenance information

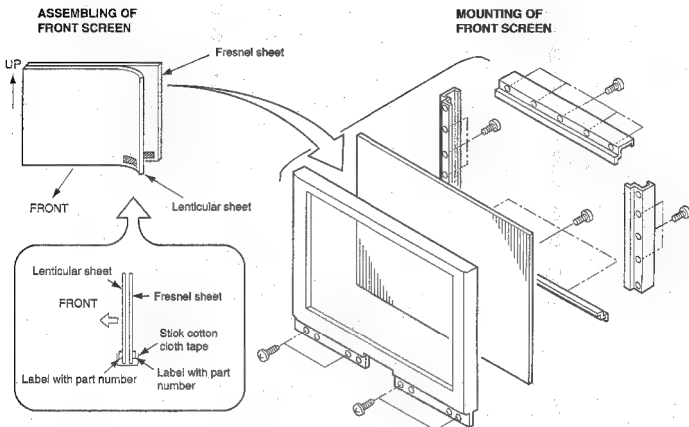
Disconnect the power cord plug from the electrical outlet when performing cleaning or maintenance. Electric shock may occur if the plug is not disconnected.



After purchase, consult a service technician once a year for cabinet maintenance and cleaning. If dust accumulates for a long period of time in the inside of the main unit without cleaning, this may result in fire or damage. The cleaning is particularly effective before a service technician visits. Please refer to the maintenance and service technician for further information regarding the cleaning process.

# SPECIFIC SERVICE INSTRUCTIONS

## SCREEN AND MIRROR ALIGNMENTS



## CLEANING OF LENS AND MIRROR

**CAUTION:** Do not hold the optical system parts (lens and mirror) with bare hand to avoid finger-prints on the surface of those parts.

### HOW TO CLEAN LENS AND MIRROR

1. Be sure to remove sand dust with an air brush, etc.
2. When it is stained slightly, breathe upon it and wipe away with the specified cleaning cloth.

For other stains than the above, wipe the stains away with the specified cloth into which a cleaning liquid has been soaked.

Cleaning liquid ..... **LENS LUSTER**

### HOW TO CLEAN SCREEN

When cleaning the screen, use a soft cloth so as not to damage the screen.

1. Wipe the stain away with a diluted neutral detergent soaked cloth.
2. Wipe the detergent away with a water soaked cloth.
3. Wipe the screen with a dry cloth to remove moisture on the screen.


**Note:** Absolutely do not use alcohol, benzine, thinner, etc. for cleaning in order not to wipe away the black print on the surface.

**WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.**

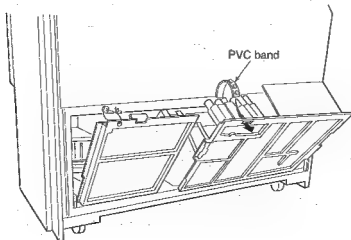
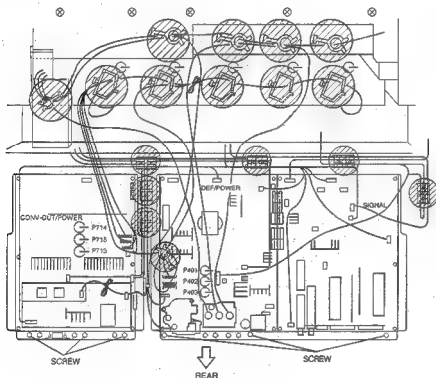
## SERVICE POSITION

In order to assure the performance, processed wires shall be replaced after the repair work.

Work procedures are as follows:

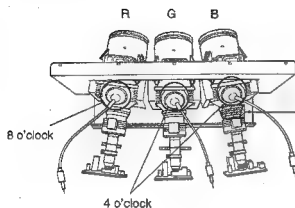
1. Remove the back board. (See page 60.)
2. Remove lead wires from 17 holders in  as illustrated.
3. Draw out the chassis.
4. Insert the front edge of the chassis into the groove where the back board has been inserted and make the chassis stand.
5. Put one screw on cabinet by depth of their length for fixing back board, and then, temporarily use them to hold the CONV/POWER chassis with wires tied to screws or insert the PVC band into the opening of main board frame to fix the main board chassis as shown below.

After repair work finished, replace it in the opposite procedure.

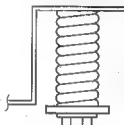


## CRT ASSEMBLY REPLACEMENT AND MOUNTING

**CAUTION : DO NOT LOOSEN THE HEX HEAD BOLTS WITH SPRINGS (12 PCS), BECAUSE THOSE ARE FOR SEALING OF CRT COOLANT.**

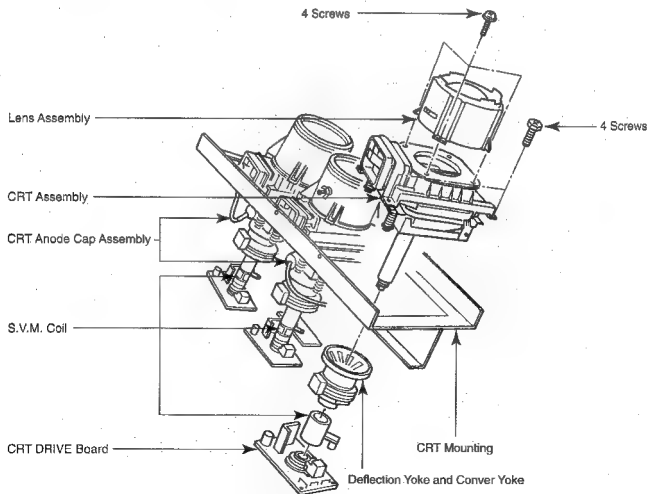


### Attention Serviceman



The Hex Head Bolts with Springs. (see sketch) used on CRT assembly, are **"NOT"**

Adjustment Screws  
**DO NOT LOOSEN-FLUID LEAKAGE WILL OCCUR.**



**Lens and Neck Components View**



#### TO REMOVE CRT (Same procedure for R, G, B)

1. Remove CRT DRIVE Board, S. V. M. COIL and DEF. YOKE from CRT.
2. Remove Lens Assembly.
3. Detach CRT Anode Cap from CRT.
4. Remove CRT Assembly from CRT Mounting.

#### CRT REPLACEMENT (Same procedure for R, G, B)

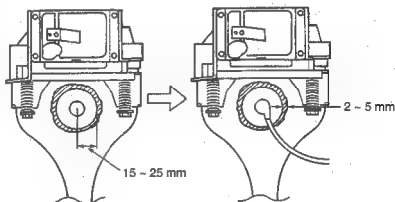
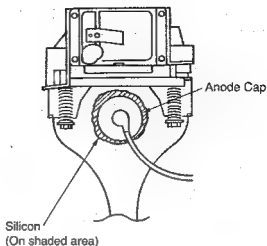
Reverse the removal procedures except the followings.

1. Anode Cable should be replaced with new one.  
See "SERVICING PRECAUTIONS" shown below.
2. Install silicon to the CRT, replace the Anode cable and put enough silicon again on around the Anode Cap as illustrated.

CAUTION: Align the Anode cable as illustrated on page 24.

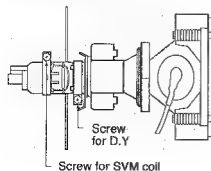
#### ADJUSTING PROCEDURE IN REPLACING CRT

1. R.G.B. CUTOFF (SCREEN VR) ADJUSTMENT (page 26.)
  2. R.G.B. FOCUS ADJUSTMENT (page 26.)
  3. PICTURE TILT ADJUSTMENT (page 27.)
  4. USER CONVERGENCE CENTER CHECK (page 11.)
  5. CENTERING ADJUSTMENT (page 27.)
  6. CONVERGENCE ADJUSTMENT (page 36.)
  7. WHITE BALANCE ADJUSTMENT (page 34.)
- Adjustments are complete.

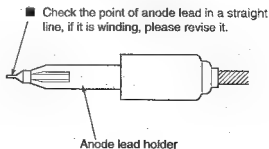


### SERVICING PRECAUTIONS

- Do not use a magnetized screw driver for screws of Deflection Yoke and Velocity Modulation Coil to avoid magnetization of electron gun.  
Magnetization of electron gun will degrade basic function and result in unbalance of right and left shift of user static convergence, and result in no variable quantity.



- When replacing the anode cap assembly (CRT) or anode lead assembly (F.B.T.), remove the anode lead holder from old one and attach the holder again to new anode lead.

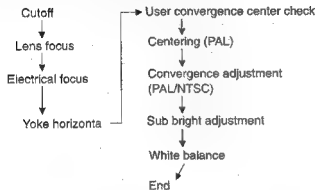


# SERVICE ADJUSTMENT

**WARNING:** BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE III OF THIS MANUAL.

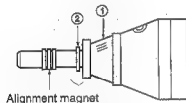
## PICTURE TUBE COMPONENTS ADJUSTMENT

### ADJUSTING PROCEDURE IN REPLACING CRT



※TEST SIGNAL SELECTION page 31.

### DESCRIPTION OF NECK COMPONENTS



- ① Deflection yoke and convergence yoke.  
The position on the neck is required most front (CRT funnel side) and the screw is fastened after rotating yoke adjusting picture tilt.
- ② Centering magnet  
After adjusting picture tilt, picture position is finally fixed by this magnet.  
In order to get maximum margin of user convergence control for center of screen, this magnet have to be used for center convergence adjustment.

### PREPARATION

Operate the receiver for at least 5 minutes.

### R, G, B CUTOFF (SCREEN VR) ADJUSTMENT

1. Adjust before replace the screen assembly.
2. Set user control to reset position.  
(CONTRAST → Max  
BRIGHTNESS, COLOR, TINT → Center.)
3. Call up the adjustment mode display, then select the item RCUT. (See page 30.)
4. Adjust the data of items RCUT, GCUT, and BCUT to "40H".
5. Press the  $\ominus$  button on PJTV. (Y-MUTE : ON)
6. Gradually rotate R, G and B screen volume of FOCUS PAC clockwise or counterclockwise until the raster appears slightly on the CRT through the each lens, and leave them. (See page 28.)  
(Lockin to the lens in order to check the raster.)
7. Press the  $\ominus$  button on PJTV. (Return to Normal Picture)

### R, G, B FOCUS ADJUSTMENT

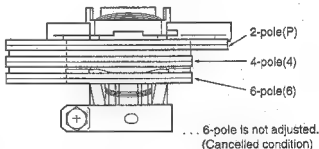
1. Select the adjustment mode. (See page 30.)
2. Press "F" button to display the built-in cross-hatch.
3. Press "R" and "G" buttons to make the picture a single Red color.  
 [R] button ..... to erase Red color  
 [G] button ..... to erase Green color  
 [B] button ..... to erase Blue color
4. Loosen the fasten screw and adjust Red lense focus to best focusing point of picture center. Then fasten the screw. (See Fig. a.)



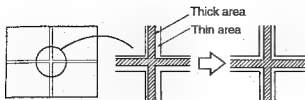
Fig. a

5. Adjust FOCUS VR "R" of FOCUS PAC to find best focusing point of picture center.
6. Repeat steps 3 to 5 for Green and Blue colors.

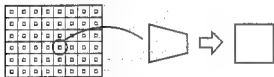
**ALIGNMENT MAGNET ADJUSTMENT (This item will be made design modification (delete) without notice)**



1. Set the 2-pole, 4-pole and 6-pole magnets to cancelled condition.  
(To realize the cancelled position, set marking letters on tabs to match front to back.)
2. Receive test signal of white cross-bar.
3. Rotate Focus VR to just a little left from optimum focusing.
4. Adjust 2-pole magnet so that thick area of luminance is located to center of thin area of luminance.



5. Rotate Focus VR counterclockwise to the just focusing.
6. Fix 2-pole magnet with adhesive.
7. Change test pattern to white cross-dot.
8. Rotate Focus VR to just a little right from optimum focusing.
9. Adjust 4-pole magnet for the square dot.



10. Rotate Focus VR counterclockwise for the just focusing.
11. Fix 4-pole magnet with adhesive.
12. Perform steps 1 to 11 for RED, GREEN and BLUE.

#### Note:

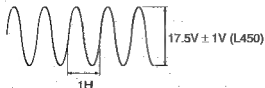
1. Before adjustment, displace previously red and blue of convergence by Convergence Menu in Set Up Menu for convenience.



2. This adjustment may be omitted due to design modification (Deletion of alignment magnet).
3. 6-pole magnet is no adjustment. Set it to cancelled condition.

#### DYNAMIC FOCUS PARABOLA ADJUSTMENT

1. Connect oscilloscope (10:1 probe) to terminal #2 of T400 and ground. (See Fig. C)
2. Turn on the TV set and adjust L450 (POWER DEF BOARD) for the peak-to-peak value of parabola wave as shown below.

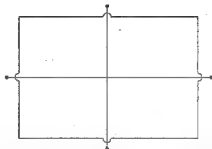


#### PICTURE TILT ADJUSTMENT

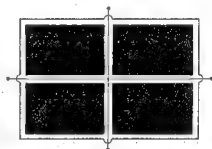
Rotate R, G, B deflection yoke so that picture becomes horizon, then fasten screw.

#### CENTERING ADJUSTMENT

1. Stretch a thread between two center slots of screen edge (top and bottom, left and right).



2. Select the adjustment mode. (See page 30.)
3. Press TV/VIDEO button on the Remote Control to display the white cross-bar.



4. Adjust G centering magnet so that the cross-bar pattern center comes to screen center.
5. Perform HEIGHT adjustment. (See page 34.)
6. Perform VERT. LINEARITY adjustment. (See page 34.)
7. Perform WIDTH adjustment. (See page 34.)
8. Check whole quality of green line.
9. Adjust R, B centering magnet so that the cross-bar pattern center comes to screen center.

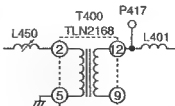
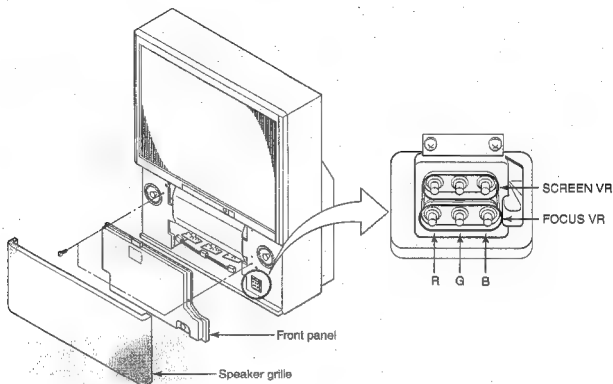


Fig. c

## LOCATION OF SCREEN AND FOCUS VR'S

To remove the Speaker grille and Front panel.



## REPLACEMENT OF HIGH VOLTAGE CABLE

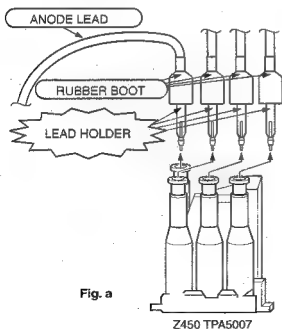


Fig. a

1. When replacing Anode Lead or Anode Cap with new one, remove Lead Holder from old lead as shown in figure below, and put it on new lead. Do not throw away Lead Holder.

**NOTE : THE LEAD HOLDER IS ATTACHED TO TPA5007 (Z450), BUT IS NOT ATTACHED TO ANODE LEAD AND ANODE CAP. RUBBER BOOT IS ATTACHED TO ANODE LEAD AND ANODE CAP.**

2. Detaching Lead Holder

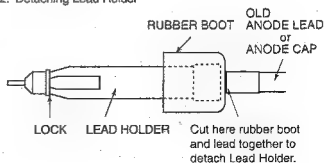


Fig. b

## CIRCUIT CHECKS

### HIGH VOLTAGE CHECK

**CAUTION:** There is no HIGH VOLTAGE ADJUSTMENT on this chassis. Checking should be done following the steps below.

1. Connect an accurate high voltage meter to the anode of the picture tube.
2. Turn on the receiver. Set the BRIGHTNESS and CONTRAST to minimum (zero beam current).
3. High voltage must be measured below 20 kV.

Refer to table 4 for high voltage @

(See SETTING & ADJUSTING DATA on page 41)

4. Vary the BRIGHTNESS to both extremes to be sure the high voltage does not exceed the limit under any conditions.

### CAUTION:

When the following parts fail, check the High Voltage after replacing.

Location No.	Name	Name
T461Z	Flyback Trans.	TFB3078ZD
D489	Zener Diode	MTZJ3.6B
Q480	Transistor	2SC2023LF-4
Q483	IC	TA75458S
R435	Resistor	33k ohm, $\pm 5\%$
R489	Resistor	3.3k ohm, $\pm 5\%$
R490	Resistor	3.3k ohm, $\pm 5\%$
R450	VR	1k ohm
C440	Capacitor	1000pF, $\pm 3\%$
C443	Capacitor	6800pF, $\pm 3\%$
C444	Capacitor	5100pF, $\pm 3\%$

### ANODE VOLTAGE MEASURING METHOD

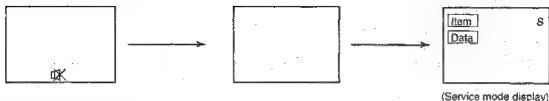
**CAUTION:** Take extra precaution when measuring this high voltage. High voltages are also present in surrounding circuit boards (CRT DRIVE assembly, DEFLECTION assembly, and POWER SUPPLY assembly).

1. Disconnect the FBT anode cable as outlined below. Measure high voltage at the point where the cable enters the FBT.
2. Holding the rubber cover firmly, turn it counterclockwise and check that the lock has been disengaged. (See Fig. b on page 28.)
3. Determine the extent of the rubber cover before disconnecting the cable.
4. Pull straight up the anode cable to disconnect.
5. When reconnecting the cable, proceed in the reverse order.  
After reconnecting, tug on the cable to check that it is secure.

## SERVICE MODE (ADJUSTMENT MODE)

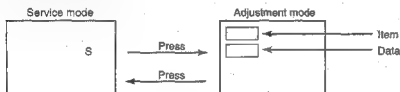
### 1. ENTERING TO SERVICE MODE

- 1) Press **OK** button once on Remote Control.
- 2) Press **OK** button again to keep pressing.
- 3) While pressing the **OK** button, press **MENU** button on TV set.



### 2. DISPLAYING THE ADJUSTMENT MENU

- 1) Press **MENU** button on TV.



### 3. KEY FUNCTION IN THE SERVICE MODE

The following key entry during display of adjustment menu provides special functions.

Screen adjustment mode ON/OFF:

Test signal selection :

Selection of the adjustment items :

Change of the data value :

Adjustment menu mode ON/OFF :

Initialization of the memory (QA02) :

Reset the count of operating protect circuit to "00":

"RCUT" selection :

"GCUT" selection :

"BCUT" selection :

"CNTX" (or "SCNT") selection :

"COLC" (or "SCOL") selection :

"TNTC" selection :

Convergence adj :

Test audio signal ON/OFF (1kHz) :

Self diagnostic display ON/OFF :

— button (on TV)

— button (on Remote)

Channel **▲/▼** (on TV or Remote)

Volume **▲/▼** (on TV or Remote)

**MENU** button (on TV)

**CALL + Channel** button on TV (**▲**)

**CALL + Channel** button on TV (**▼**)

1 button

2 button

3 button

4 button

5 button — — — Color thickness correction

6 button note: Displayed differently as shown below, depending on the setting of the receiving color system.

**▶▶** button

8 button

9 button

**COLP** (PAL)

**SCOL** (NTSC)

**COLS** (SECAM)

**CAUTION :** Never try to perform initialization unless you have changed the memory IC.

#### 4. SELECTING THE ADJUSTING ITEMS

- 1) Every pressing of CHANNEL  $\blacktriangle$  button in the service mode changes the adjustment items in the order of table-2.  
( $\blacktriangledown$  button for reverse order)

Refer to table-2 for preset data of adjustment mode.  
(See SETTING & ADJUSTING DATA on page 41)

#### 5. ADJUSTING THE DATA

- 1) Pressing of VOLUME  $\triangle$   $\nabla$  button will change the value of data in the range from 00H to FFH. The variable range depends on the adjusting item.

#### III. EXIT FROM SERVICE MODE

- 1) Pressing POWER button to turn off the TV once.

#### ■ INITIALIZATION OF MEMORY DATA OF QA02 (CAT24C08P)

After replacing QA02, the following initialization is required.

1. Enter the service mode, then select any register item.
  2. Press and hold the CALL button on the Remote, then press the CHANNEL  $\blacktriangle$  button on the TV. The initialization of QA02 has been completed.
  3. Check the picture carefully. If necessary, adjust any adjustment item above.  
Perform "Auto search Memory" on the owner's manual.
- CAUTION: Never attempt to initialize the data unless QA02 has been replaced.

#### 7. TEST SIGNAL SELECTION

- 1) Every pressing of  $\odot$  button on the Remote Control changes the built-in test patterns on screen as described below in SERVICE MODE.

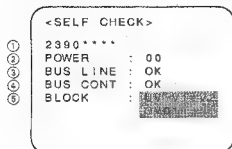
Signal off  $\longrightarrow$  NTSC signals (14 patterns)  
 $\longleftarrow$  PAL signals (14 patterns)  $\longleftarrow$

Signals	Picture
Free raster • Green raster • Blue raster • All Black • All White	
• Black & White	
• Black cross-bar • White cross-bar • Black cross-bar • White cross-bar	
• Black cross-hatch • White cross-hatch	
• Black cross-dot • White cross-dot	
• I-F signal (white) • H-signal (black)	

\* The signals marked with are not usable to display in the Test signal for some model.

## 8. SELF DIAGNOSTIC FUNCTION

- Press "9" button on Remote Control during display of adjustment menu in the service mode.  
The diagnosis will begin to check if interface among IC's are executed properly.
- During diagnosis, the following displays are shown.



- Part number of microcomputer (QA01)
- Operation number of protecting circuit ----"00" is normal.  
When indication is other than "00", overcurrent apt to flow, and circuit parts may possibly be damaged.
- BUS LINE CHECK ----"OK" is normal.  
"SDA1-GND" ----- SDA-GND short circuit.  
"SCL1-GND" ----- SCL-GND short circuit.  
"SCL1-SDA1" ----- SCL-SDA short circuit.
- BUS CONT ----"OK" is normal.  
When indication shows "Q 000 NG", the device with the number may possibly be damaged.

### ⑤ BLOCK

UV : TV reception mode

- ① VIDEO input mode
- ② VIDEO input mode

Indicated color of mode now selected : Green and Red  
Indicated color of other modes : White

Green : Normal

Red : The microcomputer operates to provide judgement of no video signal. The red color is still indicated though the signal is input, failure may exist in input signal line including QV01.

QV01 : In case of indication green ---Normal  
In case of indication red with input signal---  
Failure may exist in output line including QV01.

NOTE: Component which controls character display on screen is QT01 (TELETEXT IC). If this display function fails to operate due to damage in QT01, self diagnosis procedure is as follows:  
(1) In case that power indicator is blinking with interval of 0.5 seconds, it means protecting circuit (Current limiter) is operating, and circuit components may possibly be damaged. Check related components.  
(2) In case that power indicator is blinking with interval of 1 second, Protecting circuit does not operate, but a part of bus line does not operate normally. Check Bus line.

\* The items marked with ■ are not usable to display in the SELF DIAGNOSTIC FUNCTION for some model.

### ※SUPPLEMENT OF ④BUS CONT

"OK" ..... Normal

Display of Location Number (Ex. QA02) ... NG

(Failure place to be displayed)

QA02 NG, Q501NG, H001NG, QG01NG, QV01NG, C302NG, QZ01NG, H002NG,

QQ01NG, HY01NG, QY03NG, QY04NG, QY05NG, QZ01NG QT01NG

■ PIP UNIT

Note: The indication of failure place is only one place though failure places are plural. When repair of a failure place finishes, the next failure place is indicated. (The order of priority of indication is left side.)



## DESIGN MODE

### 1. ENTERING TO DESIGN MODE

- 1) Select the Service mode.
- 2) While pressing CALL button on Remote and press MENU button on TV.
- 3) Press MENU button on TV.



When QA02 is initialized, items "OPT0" and "OPT1" of DESIGN MODE are set to the data of the representative model of this chassis family. Therefore, because ON-SCREEN specification remains in the state of the representative of model. This model is required to reset the data of items "OPT0" and "OPT1".

### 2. SELECTING THE ADJUSTING ITEMS

Every pressing of CHANNEL ▼ button in the design mode changes the adjustment items in the order of table-3. (▲ button for reverse order)

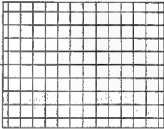

Refer to table-3 for data of design mode.

See SETTING & ADJUSTING DATA on page 49.



### 3. ADJUSTING THE DATA

Pressing of VOLUME ▲ or ▼ button will change the value of data.

## ELECTRICAL ADJUSTMENT

ITEM	ADJUSTMENT PROCEDURE
<b>WIDTH</b> (WID)	<ol style="list-style-type: none"> <li>1. Call up the adjustment mode display, then select the item <b>WID</b>.</li> <li>2. Press the VOLUME ▲ or ▼ button to get the picture so the left and right edges of raster begins to lack.</li> <li>3. Press the VOLUME ▲ or ▼ button to advance the data by 7 steps.</li> </ol> <p>Note : Check the horizontal picture position is correct.</p>
<b>VERTICAL LINEARITY</b> (VLIN)	<ol style="list-style-type: none"> <li>1. Call up the adjustment mode display, then select the item <b>VLIN</b>.</li> <li>2. Press the TV/VIDEO button on Remote until the cross-hatch pattern appears on the screen.</li> <li>3. Press the VOLUME ▲ or ▼ button to obtain the picture of the best linearity</li> </ol> <div style="text-align: center;">  <p>Center</p> </div>
<b>HEIGHT</b> (HIT)	<ol style="list-style-type: none"> <li>1. Call up the adjustment mode display, then select the item <b>HIT</b>.</li> <li>2. Press the VOLUME ▲ or ▼ button to get the picture so the top of raster begins to lack.</li> <li>3. Press the VOLUME ▲ button to advance the data by 8 steps.</li> </ol> <p>Note : Check the vertical picture position is correct.</p>
<b>WHITE BALANCE</b> (RCUT) (GCUT) (BCUT) (RDRV) (BDRV)	<p>Black and White pattern</p> <div style="text-align: center;">  </div> <p>High light area Adjust "RDRV" or "BDRV" to be white.</p> <p>Low light area Fine adjust "RCUT", "GCUT" or "BCUT" to be black.</p> <ol style="list-style-type: none"> <li>1. Set user control to reset position. ( CONTRAST → Max BRIGHTNESS, COLOR, TINT → Center. )</li> <li>2. Call up the adjustment mode display, then select the item <b>RCUT</b>.</li> <li>3. Adjust the data of items <b>RCUT</b>, <b>GCUT</b>, and <b>BCUT</b> to "40H".</li> <li>4. Press the -C button on PJTV. (Y-MUTE : ON)</li> <li>5. Gradually rotate R, G and B screen volume of FOCUS PAC clockwise or counterclockwise until the raster appears slightly on the CRT through the each lens, and leave them. (Lookin to the lens in order to check the raster.)</li> <li>6. Press the -C button on PJTV. (Return to Normal Picture)</li> <li>7. Press the -C button on Remote, and select the Black and White pattern.</li> <li>8. Adjust the data of items <b>RCUT</b>, <b>GCUT</b> and <b>BCUT</b> for proper white-balanced picture in low light area.</li> <li>9. Adjust the data of items <b>RDRV</b> and <b>BDRV</b> for proper white-balanced picture in high light area.</li> <li>10. Check the white balance in both low and high light areas. If necessary, perform again steps from 8 to 9.</li> </ol>

# ADJUSTMENT OF VIDEO-CHROMA SYSTEM (SERVICE MODE ADJUSTMENT)

Symbol	Name	Setting	Input signal	Measurement point	Instrument	Adjustment procedure	Adjustment standard
BELL	BELL FILTER		SECAM COLOR BAR	QQ01 #2 (TPM01)	Synchroscope	1. Adjust the amplitude of color bar to the flat level with [BELL].	100 ± 10%
SRY	SECAM R-Y BLACK LEVEL	DYNAMIC MODE	SECAM COLOR BAR	Q501 #55 (TP501)	Synchroscope	1. Adjust the black & white signal level to the H.BLK level with [SRY].	0 ± 40mV
SBY	SECAM B-Y BLACK LEVEL	DYNAMIC MODE	SECAM COLOR BAR	Q501 #55 (TP501)	Synchroscope	1. Adjust the black & white signal level to the H.BLK level with [SBY].	0 ± 40mV
SCNT	SUB Contrast	CONT : MAX Bright : Cent Color : Cent Tint : Cent	Gray scale signal	IC501 #55 (Monitor output) TP501	Synchroscope	1. Select the slave address [SCNT], and Y signal will be outputted from the monitor output. 2. Adjust the amplitude of the white level according to the Y signal and the pedestal level.	2.5V(p-p) ± 0.2V(p-p)
BRTC	SUB BRIGHT	CONT : MAX Bright : Cent Color : MIN	BLACK/ WHITE signal	Picture adjustment	Visual check	SUB BRIGHT (BRTC) 1. Set user control to reset position. 2. Call up the adjustment mode display, then select the item BRTC. 3. Press the $\odot$ button on Remote, and select the black and white pattern. 4. Adjust the data of item BRTC and set it just before the dark area lights.	
COLS	COLOR Control Center SECAM	CONT : MAX Bright : Cent Color : Cent Tint : Cent	SECAM color bar signal	IC501 #55 (Monitor output) TP501	Synchroscope	1. This item must be adjusted after the slave address [SCOL] has been adjusted. 2. Select the slave address [COLS], and B-Y signal will be outputted from the monitor output. 3. Adjust the amplitude of the color bar output.	1.75V(0-p) ± 0.2V(p-p) 
SCOL	SUB COLOR NTSC	CONT : MAX Bright : Cent Color : Cent Tint : Cent	Gray scale signal (NTSC)	IC501 #55 (Monitor output) TP501	Synchroscope	1. This item must be adjusted after the slave addresses [TNTC] and [SCNT] have been adjusted. 2. Select the slave address [SCOL], and B-Y signal will be outputted from the monitor output. 3. Adjust the amplitude of the rainbow color bar output.	1.35V(0-p) ± 0.2V(p-p) 
COLP	SUB COLOR PAL	CONT : MAX Bright : Cent Color : Cent Tint : Cent	Gray scale signal (PAL)	IC501 #55 (Monitor output) TP501	Synchroscope	1. This item must be adjusted after the slave address [SCOL] has been adjusted. 2. By selecting slave address [COLP], B-Y signal is provided from monitor output. 3. Adjust amplitude of color bar part.	1.35V(0-p) ± 0.2V(p-p)
TNTC	TINT Control Center	CONT : MAX Bright : Cent Color : Cent Tint : Cent	Gray scale signal (NTSC)	C501 #55 (Monitor output) TP501	Synchroscope	1. Select the slave address [TNTC], and B-Y signal will be outputted from the monitor output. 2. Adjust the amplitude of the rainbow color bar output.	-5° ± 5°
RGBB	PIP BLACK LEVEL		Gray scale signal	Picture adjustment	Visual check	1. Adjust the number of black collapse of PIP sub bright signal.	5 ± 1.5

# CONVERGENCE ADJUSTMENT

## 1. PICTURE ADJUSTMENT

The adjustment are done on two screens; 50 Hz mode (PAL) and 60 Hz mode (NTSC). To synchronize correction wave to each frequency, receive the suitable signal.

### 1-1. Change of Memory (E<sup>2</sup>PROM)

Memory of Q713 E<sup>2</sup>PROM is nonvolatile, and adjusted data is stored. Since data in RAM of Q701 is eliminated with power OFF, the RAM is set by soft command of microcomputer QA01 at every power ON. The adjusted data which is obtained from screen-watching is once stored in RAM inside QA01. The whole data in RAM which is corrected on each adjusting point and is changed, is saved into E<sup>2</sup>PROM (Q713) as a fixed data. The data capacity per one screen requires 8k for 50 Hz mode (PAL), and 4k for 60 Hz mode (NTSC).

### 1-2. Service Mode

#### 1-2-1. Outline

Service mode is controlled by software of microcomputer QA01, and is one of function of set.

This mode is designed so that ordinary user cannot use this, and special operation is required to use this.

Data change is done by direct shift (cursor display) of adjusting points; 50 Hz mode (PAL) 8 × 8/1 color and 60 Hz mode (NTSC) 8 × 8/1 color.

#### 1-2-2. To Enter and to Exit

Press MUTE key on remote hand unit twice and keep pressing the key, press MENU key of set console.

Then service data will be displayed on top left of screen. Under the condition, press "↵" key on remote hand unit, and the screen shows crosshatch picture (Later, the first picture). Press again "↵" key, and the screen changes to crosshatch + data display (Later, second picture). This time changed data are automatically saved.

Further, press "↵" key on remote, the screen returns to original picture.

⬅ + ➡ MENU

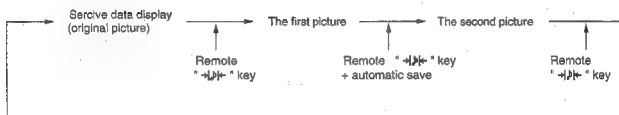
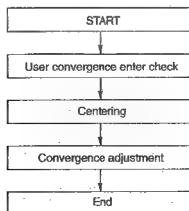
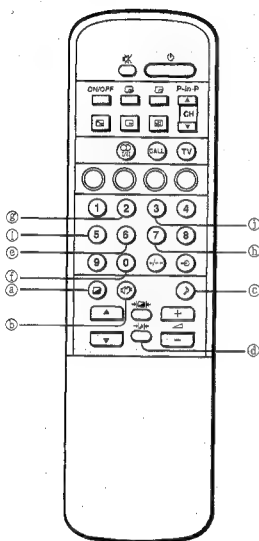


Fig. 10 -1

### Adjusting Procedure In Replacing Convergence Unit/Main Def



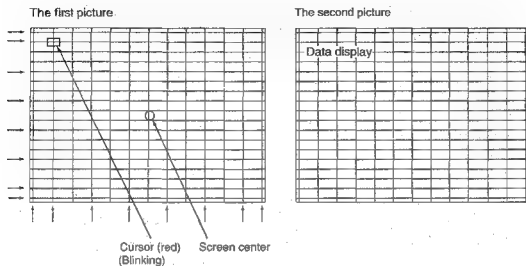
## 2. KEY FUNCTION OF REMOTE CONTROL UNIT



- (a) key .. Red test pattern ON/OFF
- (b) key .. Green test pattern ON/OFF
- (c) key .. Blue test pattern ON/OFF
- (d) key .. Mode picture change-over
- (e) 6 key .. Cursor shift / data change mode change-over
- (f) 0 key .. Cursor down / adjusting point down
- (g) 2 key .. Cursor up / adjusting point up
- (h) 7 key .. Cursor right / adjusting point right
- (i) 5 key .. Cursor left / adjusting point left
- (j) 3 key .. Cursor color change

### 3. Picture

a) 50 Hz mode (PAL) . . . . Correcting point: Horizontal 8 × Vertical 8 (Arrow marks denote correcting point)



#### The first picture

Crosshatch pattern. Pattern colors are three color display. Cursor is blinking in red. When changed, condition is last memory state.

Cursor is ..... Data change mode in lighting,  
Cursor shifting mode in blinking.

Display color shows the color that data change is possible.

#### The second picture

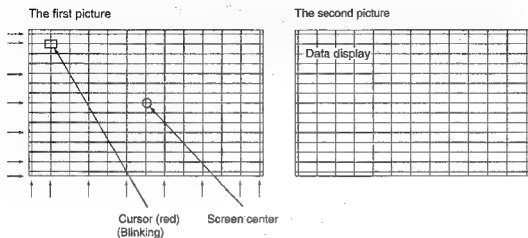
When entering from the first picture to the second picture, correcting wave of convergence is muted for one second. During this period, the changed data is transferred from RAM Q701 to E2PROM Q713, and saved.

The second picture is indicated with data on top left of the first picture, therefore, convergence cannot be adjusted by this picture.

#### Caution:

- Receive suitable signal for adjustment. Centering of green picture can be done in 50 Hz mode (PAL).
- Centering of 60 Hz mode (NTSC) can be adjusted by convergence adjustment. Besides, decide the center by cross pattern of static convergence in menu, and adjust convergence from center to circumference.

**b) 60 Hz mode (NTSC) . . . . Correcting point: Horizontal 8 x Vertical 7 (Arrow marks denote correcting point)**



**The first picture**

Crosshatch pattern. Pattern colors are three color display. Cursor is blinking in red. When changed, condition is last memory state.

Cursor is ..... Data change mode in lighting,  
Cursor shifting mode in blinking.

Display color shows the color that data change is possible.

**The second picture**

When entering from the first picture to the second picture, correcting wave of convergence is muted for one second.

During this period, the changed data is transferred from RAM Q701 to EPROM Q713, and saved.

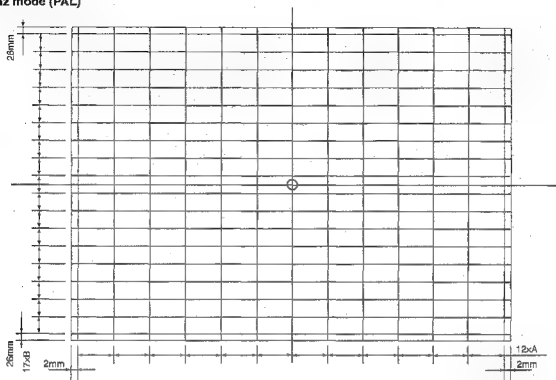
The second picture is indicated with data on top left of the first picture, therefore, convergence cannot be adjusted by this picture.

**Caution:**

- Receive suitable signal for adjustment. Decide the center by cross pattern of static convergence in menu, and adjust convergence from center to circumference.

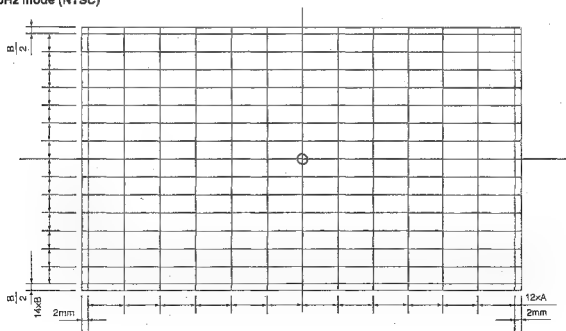
#### 4. ADJUSTING PICTURE DIMENSION (GREEN PICTURE)

##### 1. 50 Hz mode (PAL)



48 inches 4:3 Screen size: Horizontal 975mm, Vertical 732mm ○ mark: center  
Dimension A: 80.9mm, Dimension B: 40mm

##### 2. 60Hz mode (NTSC)



48 inches 4:3 Screen size: Horizontal 975mm, Vertical 732mm  
Dimension A: 80.9mm, Dimension B: 48.8mm



## SETTING & ADJUSTING DATA

【SAFETY INSTRUCTIONS】 page 3

HIGH VOLTAGE AT ZERO BEAM:	Ⓐ	31.5 kV
MAX HIGH VOLTAGE:	Ⓑ	32.0 kV
AV VOLTAGE	Ⓒ	110-240 V

Table-1

【SERVICE MODE】 page 30

ADJUSTING ITEMS AND DATAS IN THE SERVICE MODE:

Item	Adjustment	Reference data
RCUT	R CUTOFF (B/W)	40H
GCUT	G CUTOFF (B/W)	40H
BCUT	B CUTOFF (B/W)	40H
RDRV	R DRIVE	40H
BDRV	B DRIVE	40H
CNTX	SUB CONTRAST MAX (4:3 MODE)	7FH
BRTC	SUB BRIGHT CEN	6FH
COLC	SUB COLOR CEN NTSC	35H
TNTC	SUB TINT CEN	4AH
COLP	SUB COLOR CEN PAL	35H
COLS	SUB COLOR CEN SECAM	35H
SCOL	SUB COLOR	10H
SCNT	SUB CONTRAST	09H
VOLS	VOL SCART	00H
FVOL	FM VOL PRE SCALE	00H
NVOL	NICAM VOL PRE SCALE	00H
NICL	NICAM THRESHOLD LEVEL	00H
NICH	NICAM THRESHOLD LEVEL	00H
IDL	IGR THRESHOLD LEVEL	00H
IDH	IGR THRESHOLD LEVEL	00H
EVOL	EXT PRE. VOLUME	01H
EMX	NICAM ON LEVEL	FCH
EMN	NICAM OFF LEVEL	64H
HPOS	50Hz H-POSITION	0BH
VPOS	V-POSITION	04H
HIT	HEIGHT	4BH
VLIN	V-LINEARITY	12H
VSC	V-S CORRECTION	0FH
VPS	V-SHIFT	0EH
VCP	V-COMPENSATION	09H
WID	PICTURE WIDTH	2AH
PARA	E-W PARABOLA	2AH
CNR	E-W CORNER	01H
TRAP	TRAPEZIUM	1AH
HCP	H-COMPENSATION	00H
VFC	V-F CORRECTION	0FH
BELL	SECAM BELL FILTER	70H
SRY	SECAM R-Y	08H
SBY	SECAM B-Y	08H

Table-2

ADJUSTING ITEMS AND DATAS IN THE DESIGN MODE:

Item	Name of adjustment	Preset Data	Data	Remarks
RCUT OPT1 OPT0 OSD . . . RCUT	OPTION 1 OPTION II	00H 02H	00H 00H	

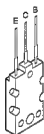
Table-3



# STANDARD CIRCUIT DIAGRAM

## TERMINAL VIEW OF TRANSISTORS

- ① 2SD2253  
(old)  
2SC5243



- ② 2SC3852  
2SD1763A  
2SC1569  
2SC4544  
2SA1788  
2SA1306  
2SA1186A



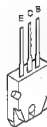
- ③ 2SC752GTM  
2SC2482  
2SC2655  
2SC4721P



- ④ 2SC752  
2SA562TM  
2SA1015  
2SC1815  
2SC2878  
2SC1740S  
2SC2120  
2SA9335



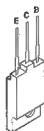
- ⑤ 2SA1788



- ⑥ RN2203  
RN2201  
RN2004  
RN1203  
RN1204  
RN2204  
RN1205  
RN1202  
RN1201



- ⑦ 2SD1554  
2SD2253  
2SD1556  
2SC5143

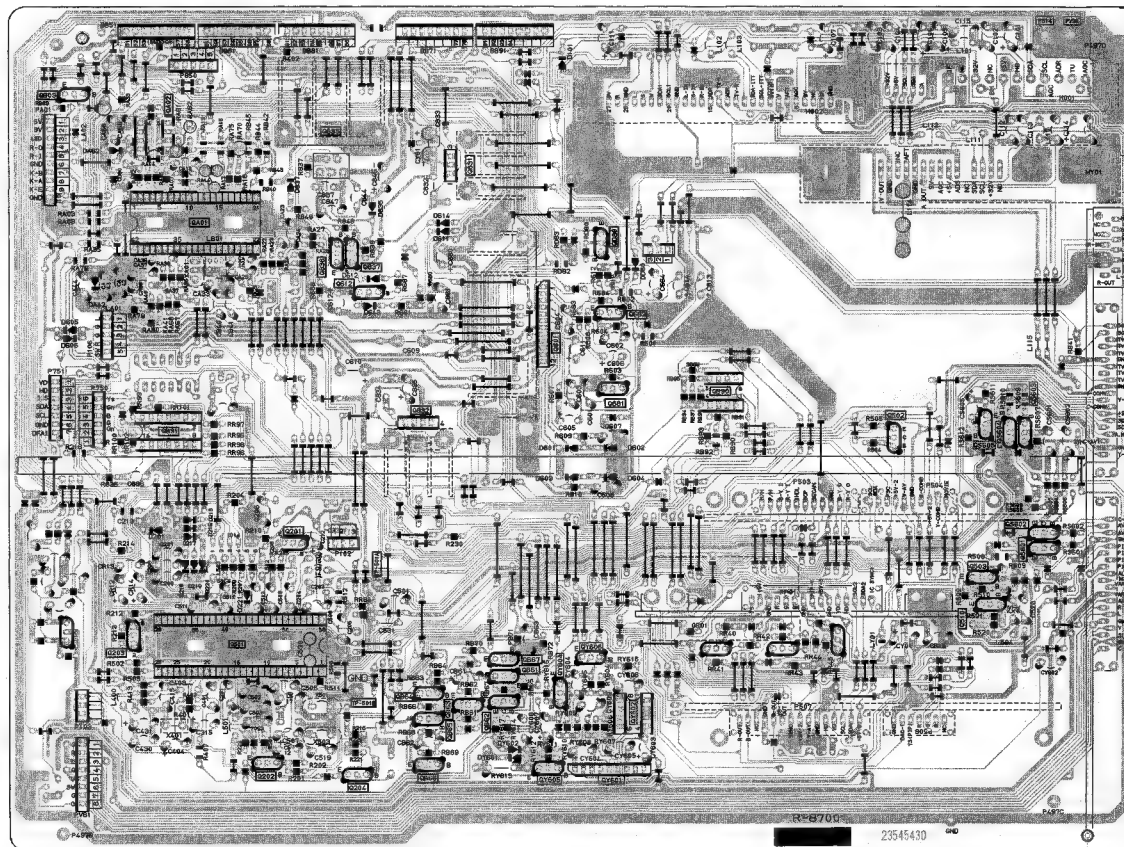


- ⑧ ON4409



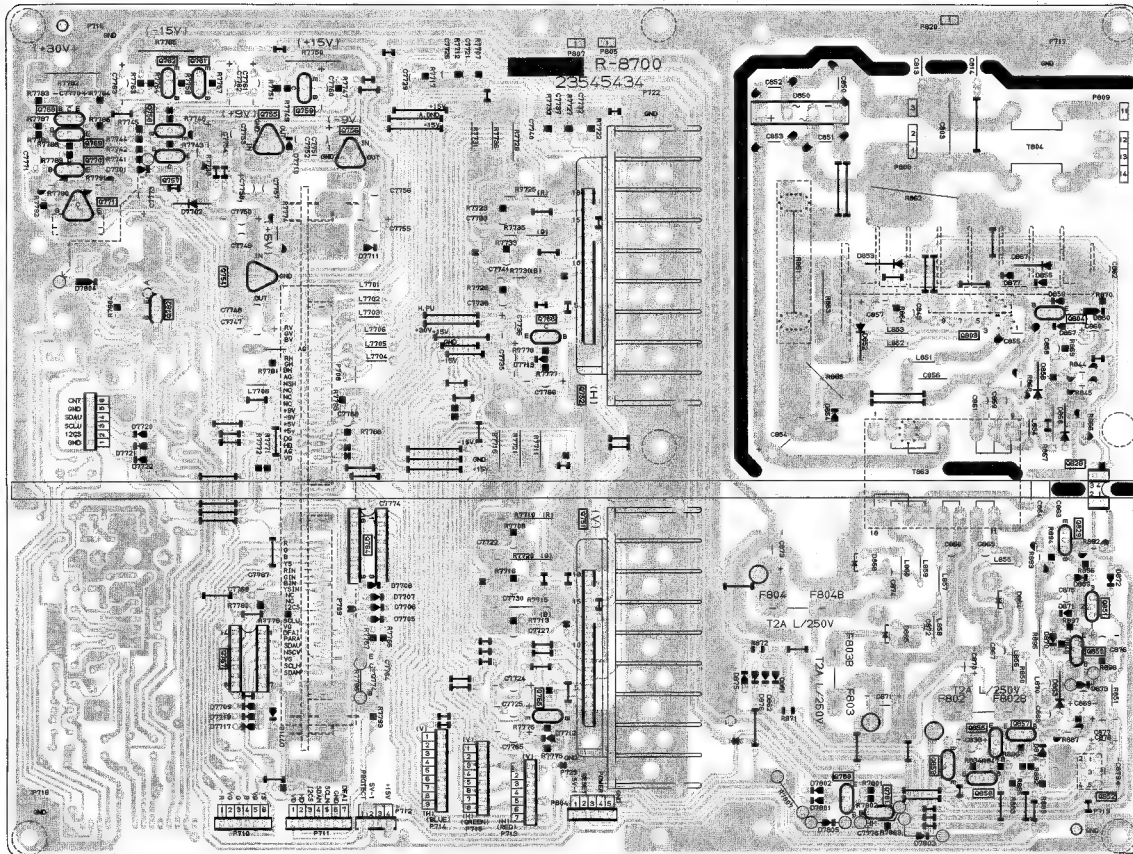
AV-48PRO  
AV-48PROX

SIGNAL BOARD PB7667 (AV-48PRO)  
PB7674 (AV-48PROX)  
BOTTOM (FOIL) SIDE

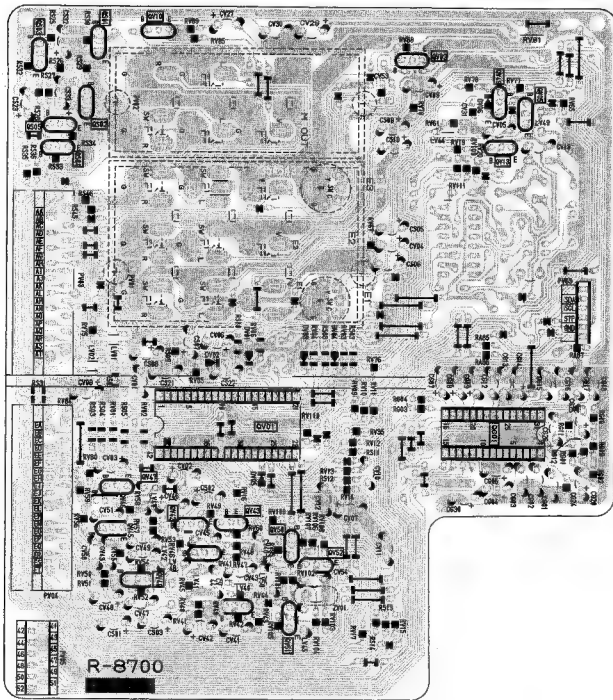




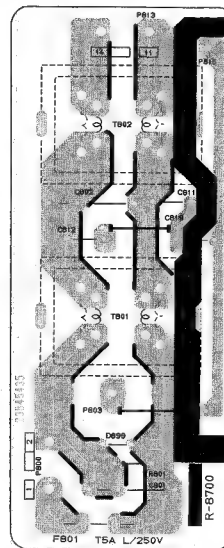
CONV/POWER2 BOARD PB7671  
BOTTOM (FOIL) SIDE



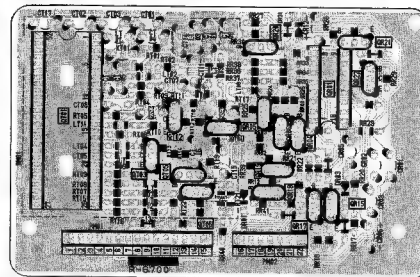
**A/V BOARD PB7669**  
BOTTOM (FOIL) SIDE



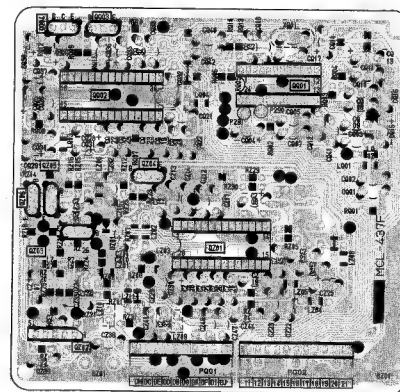
**AC-IN1 BOARD PB7672**  
BOTTOM (FOIL) SIDE



**TEXT BOARD PB7668 (AV-48PRO)**  
BOTTOM (FOIL) SIDE



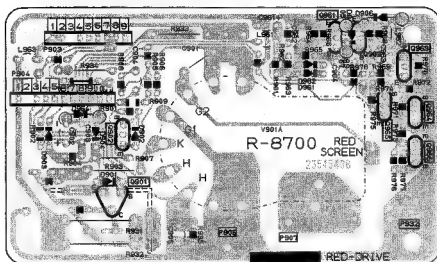
**COMB/SECAM BOARD PB7670**  
BOTTOM (FOIL) SIDE





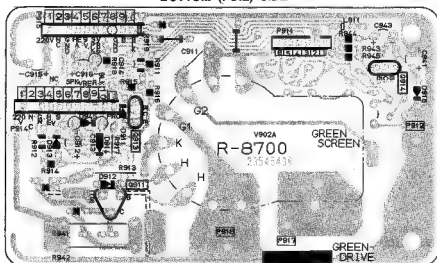
# **R-DRIVE BOARD PB7673-1**

**BOTTOM (FOIL) SIDE**



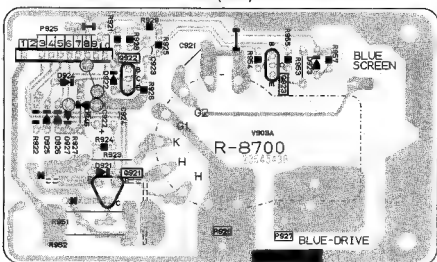
# **G-DRIVE BOARD PB7673-2**

**BOTTOM (FOIL) SIDE**

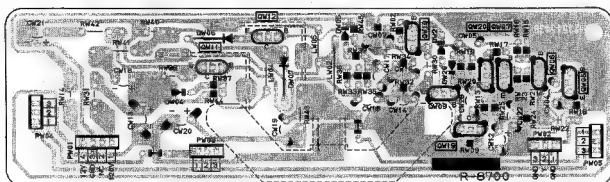


# **B-DRIVE BOARD PB7673-3**

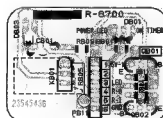
**BOTTOM (FOIL) SIDE**



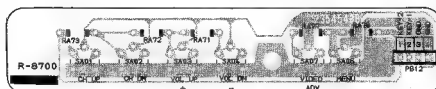
**SVM BOARD PB7673-4**  
BOTTOM (FOIL) SIDE



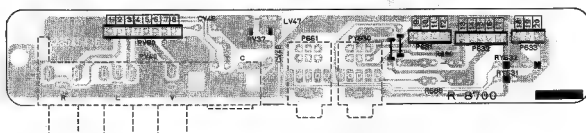
**RMT BOARD PB7673-5**  
BOTTOM (FOIL) SIDE



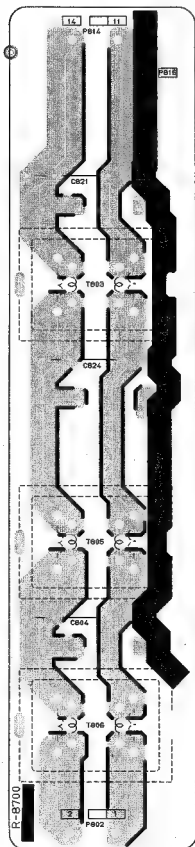
**CONT BOARD PB7673-6**  
BOTTOM (FOIL) SIDE



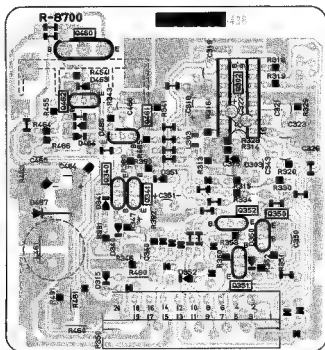
**FRONT IN BOARD PB7673-7**  
BOTTOM (FOIL) SIDE



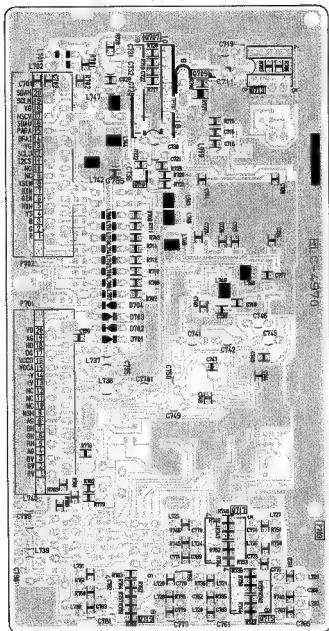
**BOTTOM (FOIL) SIDE**



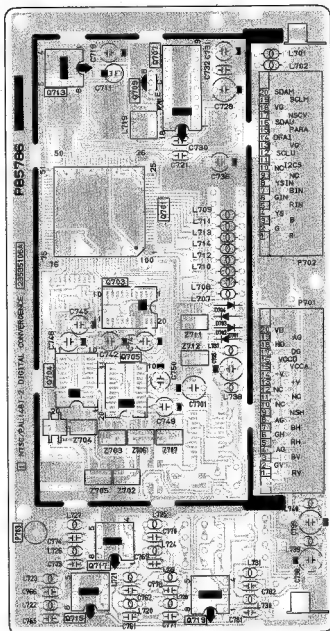
**BOTTOM (FOIL) SIDE**



**BOTTOM (FOIL) SIDE**



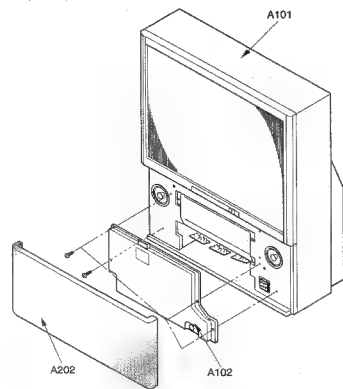
**TOP (PARTS) SIDE**



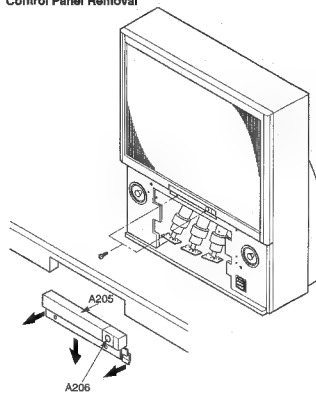


## MECHANICAL DISASSEMBLY

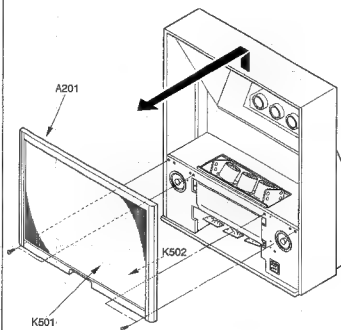
1 Speaker Grille Removal



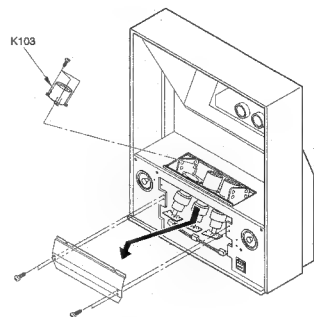
2 Control Panel Removal



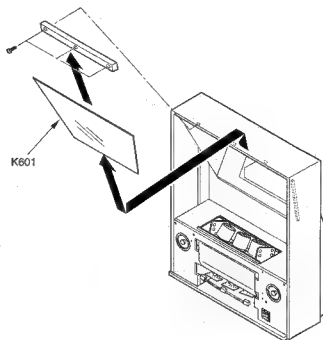
3 Front Mask Removal



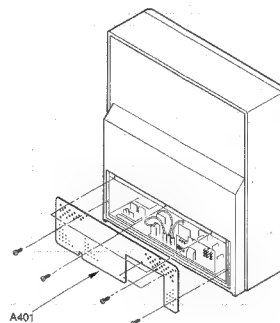
4 Shield Plate, Lens Removal



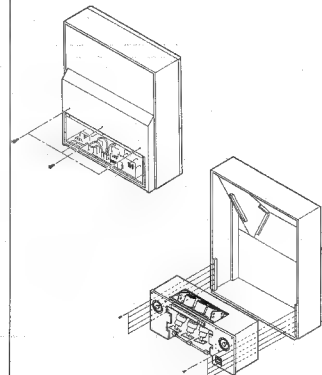
5 Mirror Removal



6 Back Board Removal



7 Light Box Removal



# SCHEMATIC DIAGRAM

MODEL : AV-48PRO (1/4)  
AV-48PROX

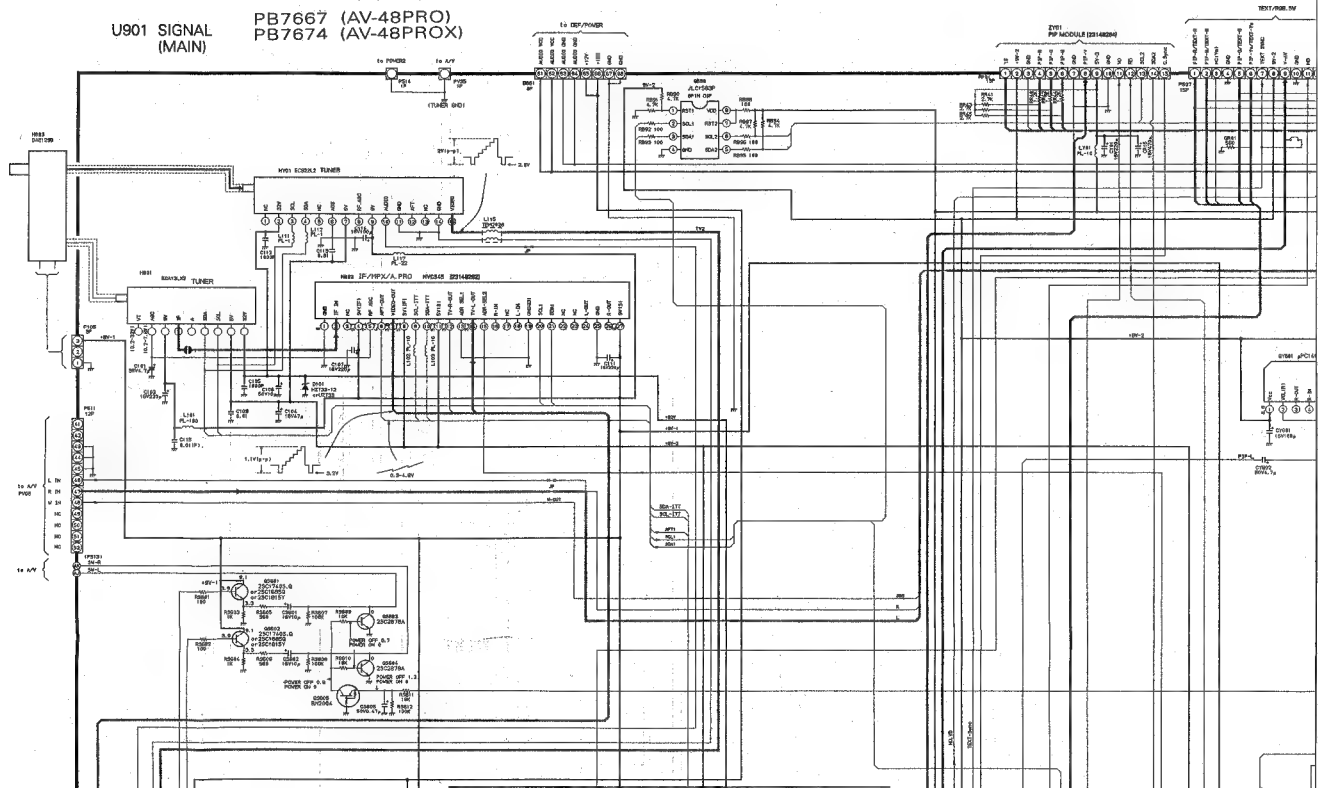
**CAUTION:** The international hazard symbols "A" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 3. Do not degrade the safety of the receiver through improper servicing.

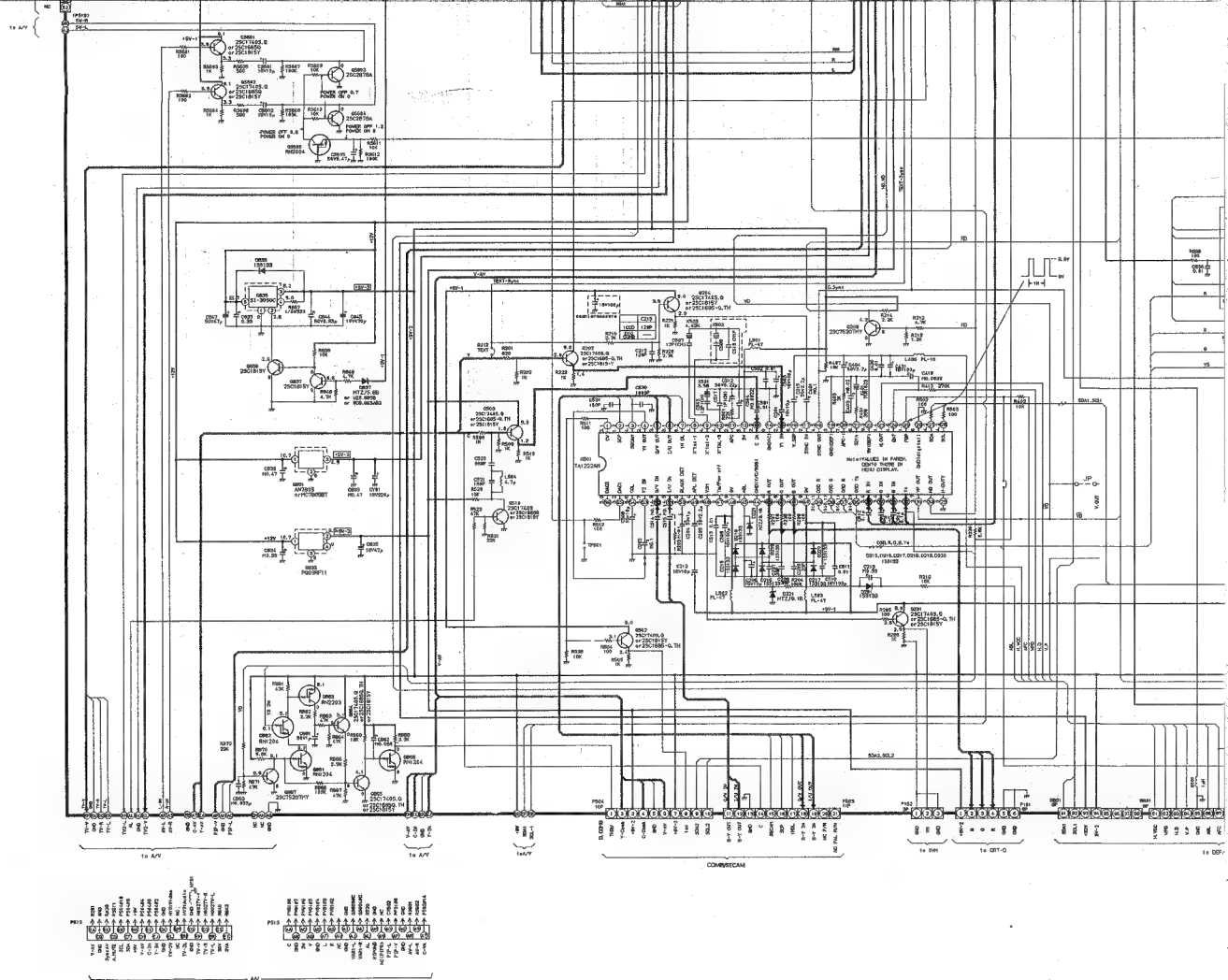
## OBSERVATION OF VOLTAGES AND WAVEFORMS

1. Voltages read with DIGITAL VOLT-METER from point shown to chassis ground, line voltage 220 volts, colour bar signal. Voltages reading may vary  $\pm 20\%$ .
2. All waveforms are taken using a wide band oscilloscope and a low capacity probe.
3. Waveforms are taken using a standard colour bar signal.
4. Make sure that CONTRAST and COLOUR controls are in mid position and BRIGHTNESS control is almost in maximum position. Set other controls for best picture.

## NOTES:

1. D.C. resistance value of a principal transistor. These are measured for separated
2. The circuits are subject to change without
3.  $\bullet$  : Solder links.







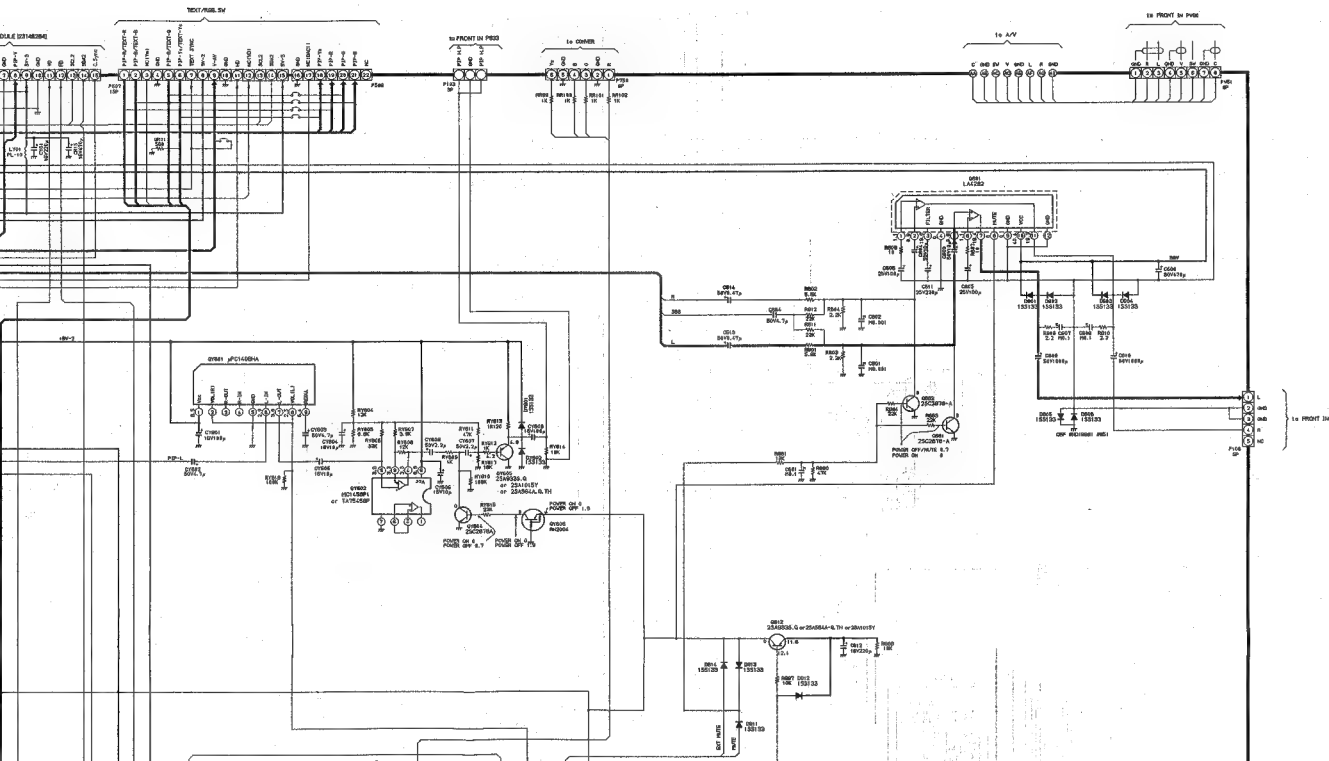
# EXPRESSION

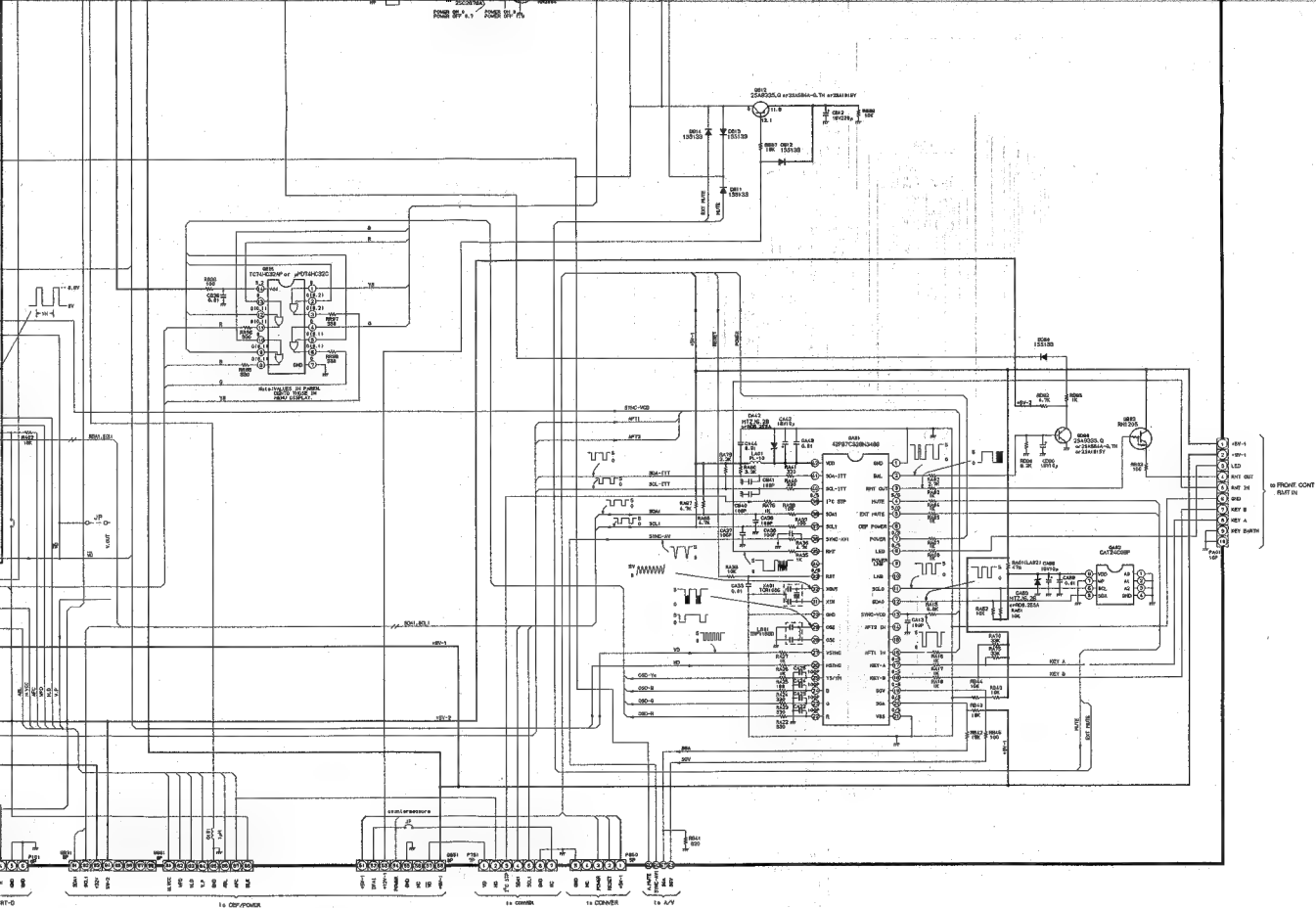
## VALUE OF RESISTOR, CAPACITOR and INDUCTOR

1. Resistance is shown in ohm, k=1,000, M=1,000,000
2. Unless other wise noted in schematic, all capacitor values less than 1 are expressed in  $\mu F$  and the values more than 1 in pF.
3. Unless otherwise noted in schematic, all inductor values more than 1 are expressed in  $\mu H$ , and the values less than 1 in H.

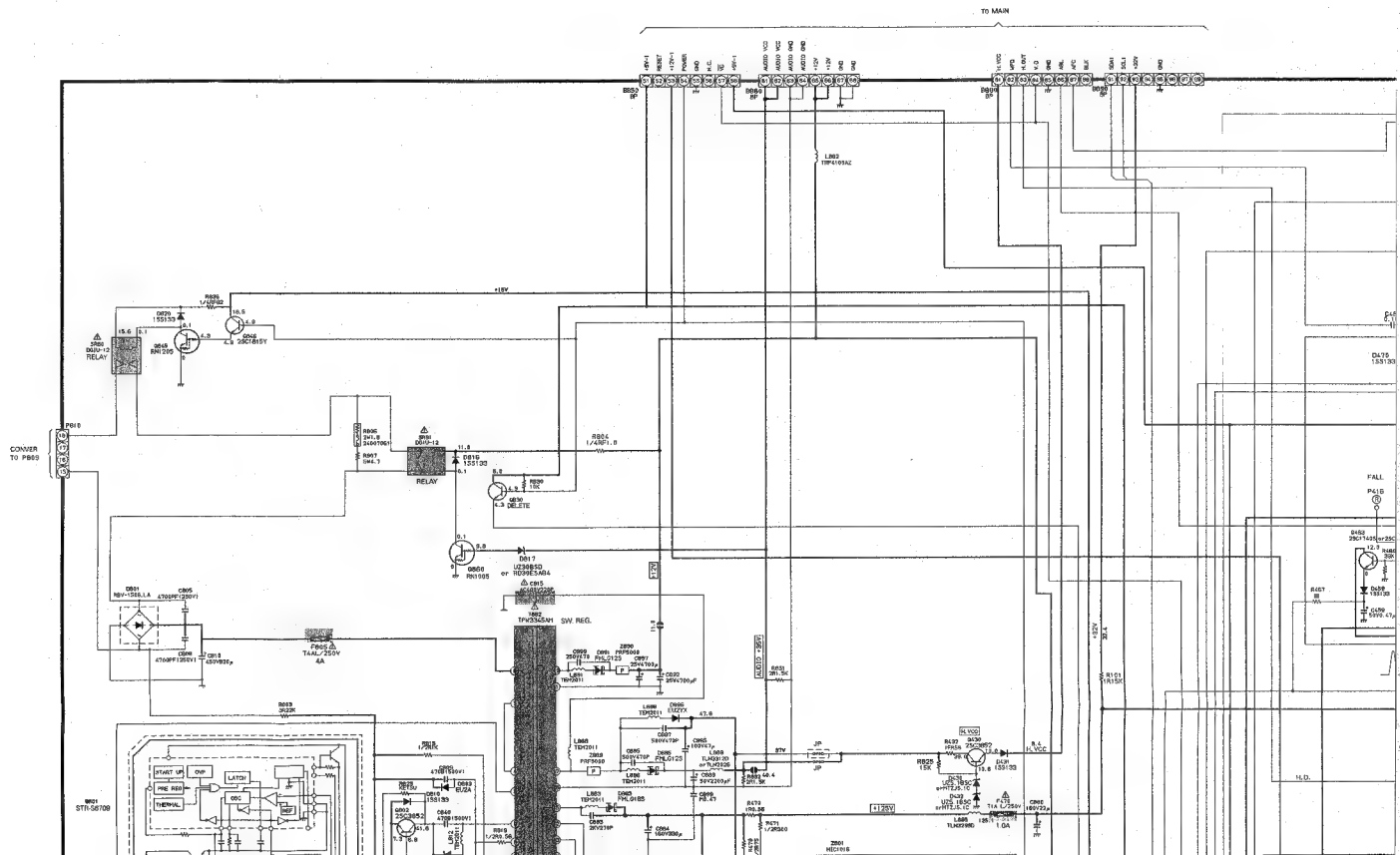
## NOTES:

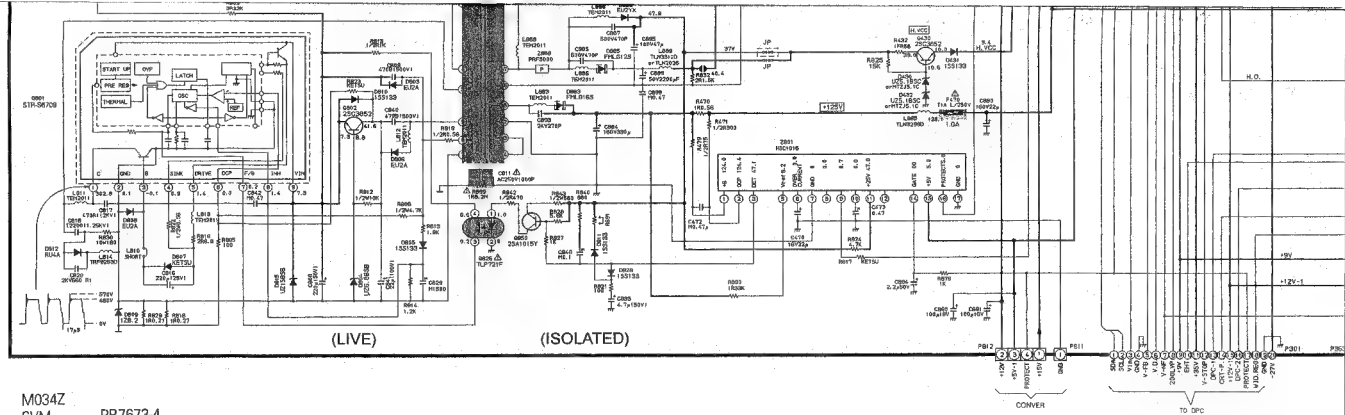
1. D.C. resistance value of a principal transformer is shown in this schematic diagram. These are measured for separated from the circuit.
2. The circuits are subject to change without notice.
3.  $\bullet$  : Solder links.

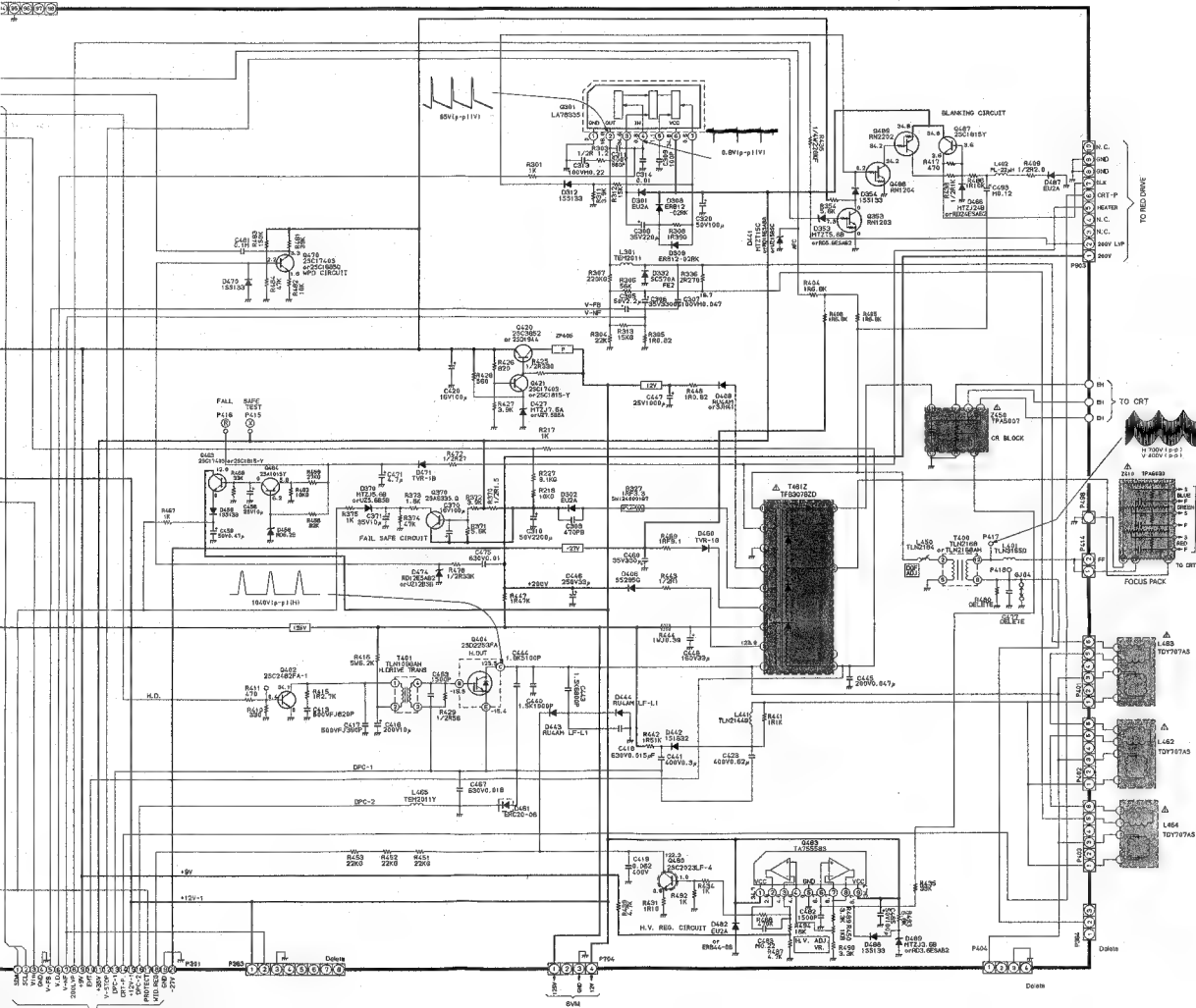


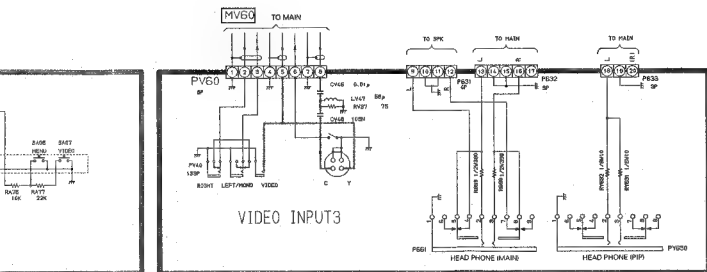
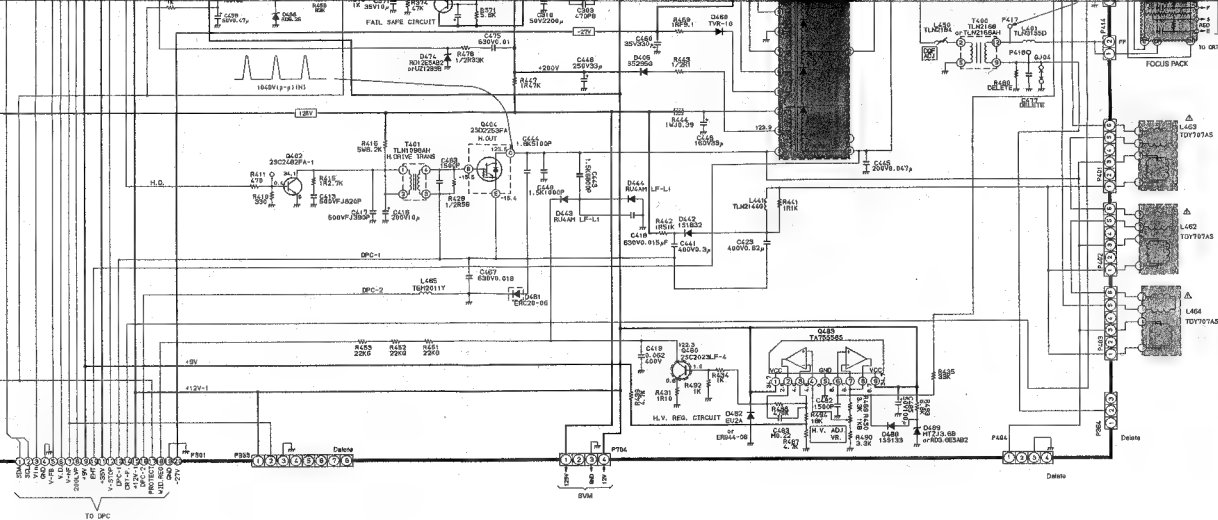


**MODEL : AV-48PRO (2/4)**  
**AV-48PROX**







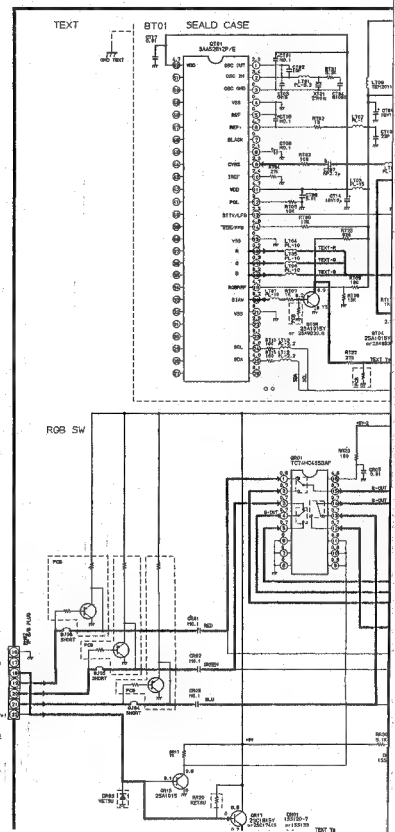


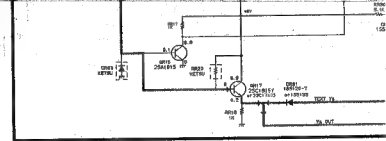
PB7673-6

M037Z FRONT IN

PB7673-7

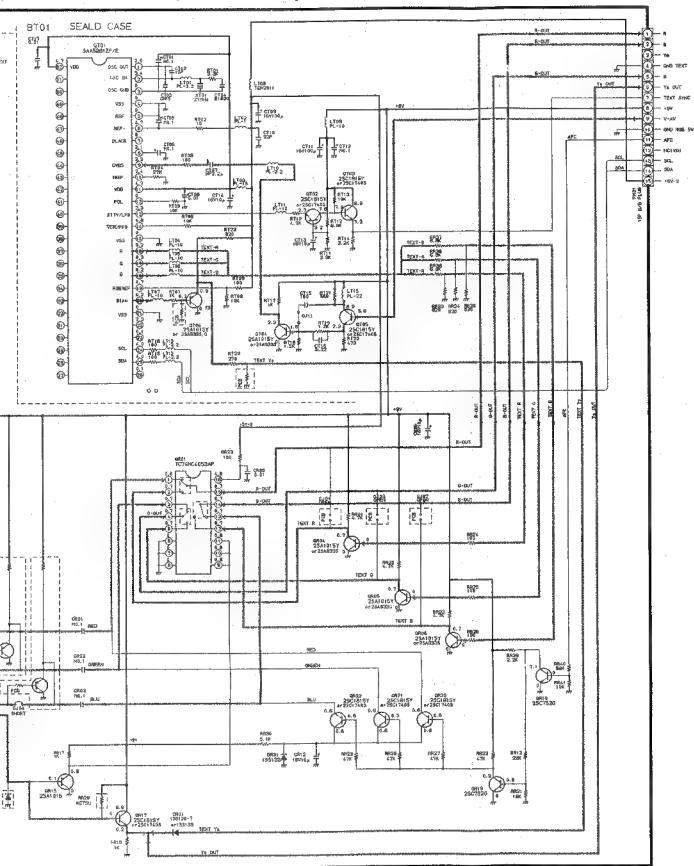
MODEL : AV-48PRO (3/4)  
AV-48PROX



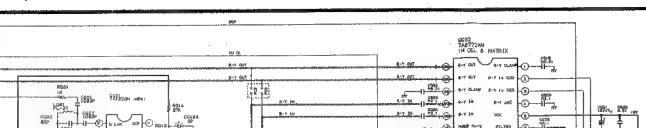
[illegible][illegible]



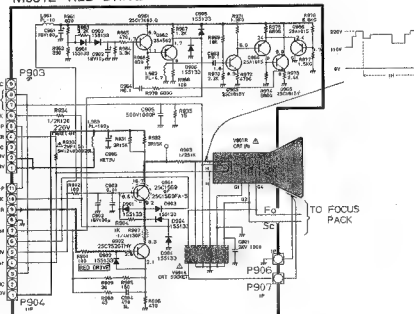
/RGB SW PB7668 [AV48PRO ONLY]



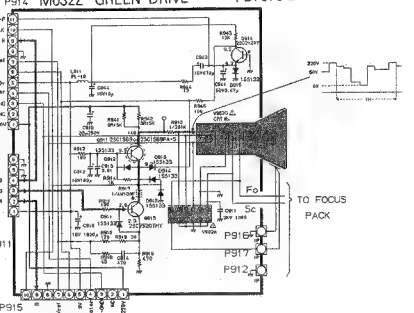
MB/SECAM PB7670



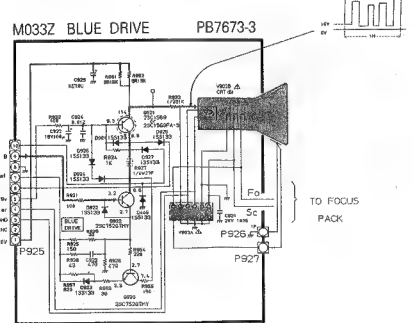
M031Z RED DRIVE PB7673-1

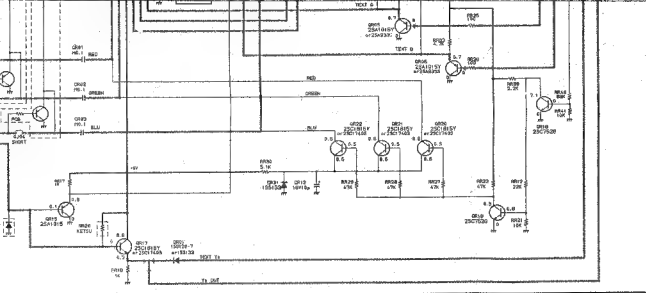


M032Z GREEN DRIVE PB7673-2

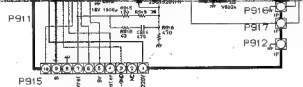
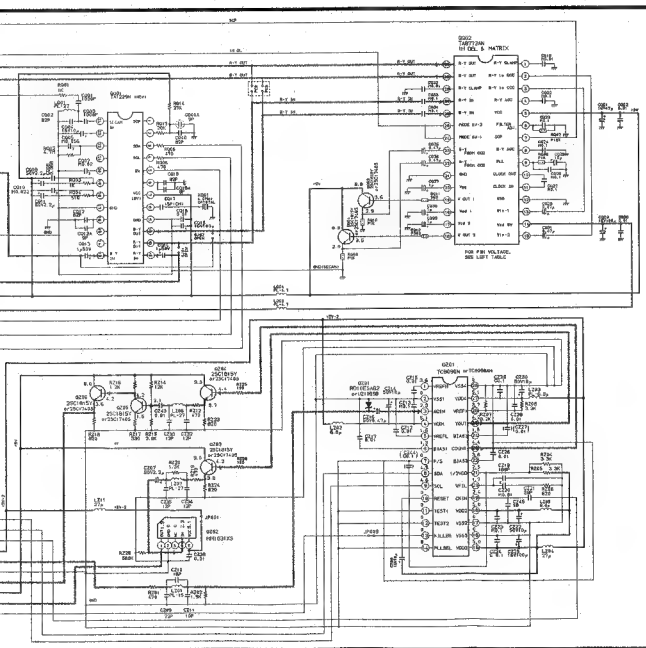


M033Z BLUE DRIVE PB7673-3





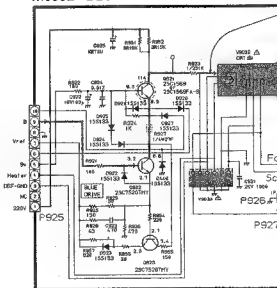
MB/SECAM PB7670



TO BLUE DRIVE UNIT P925

M033Z BLUE DRIVE

PB7673-3

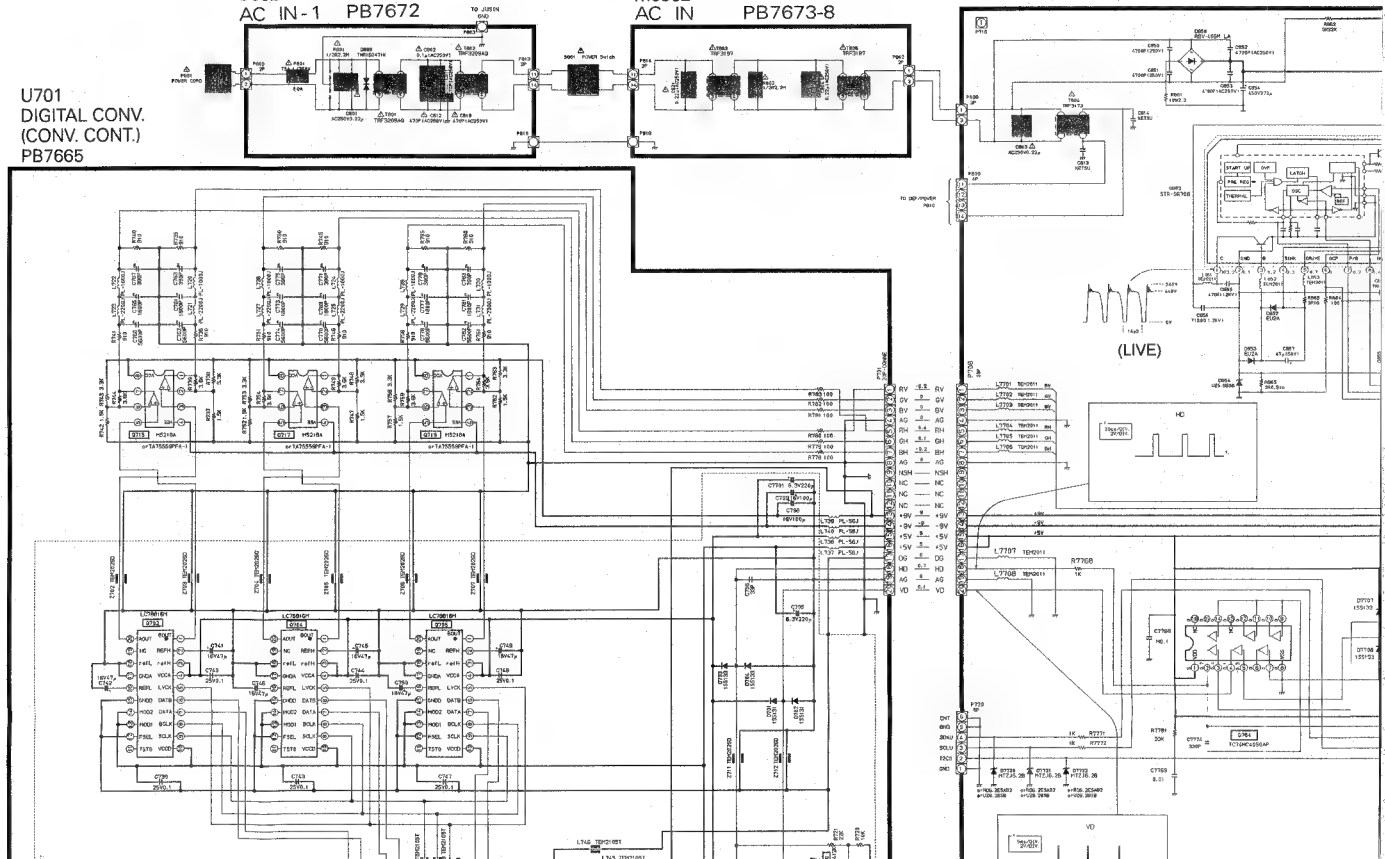


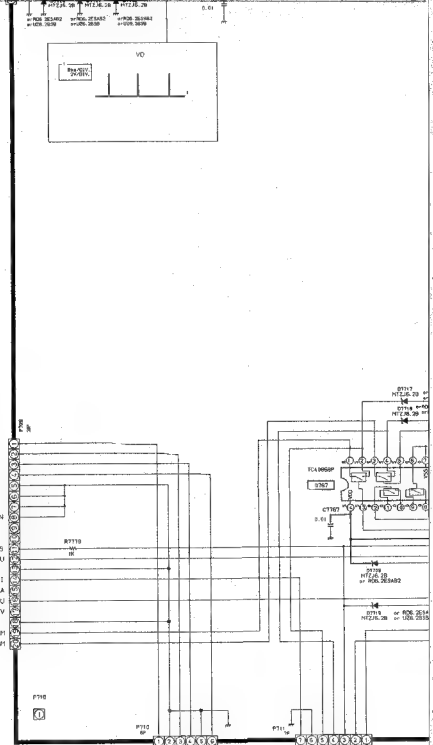
TO FOCUS  
PACK

FROM GREEN  
DRIVE

P915

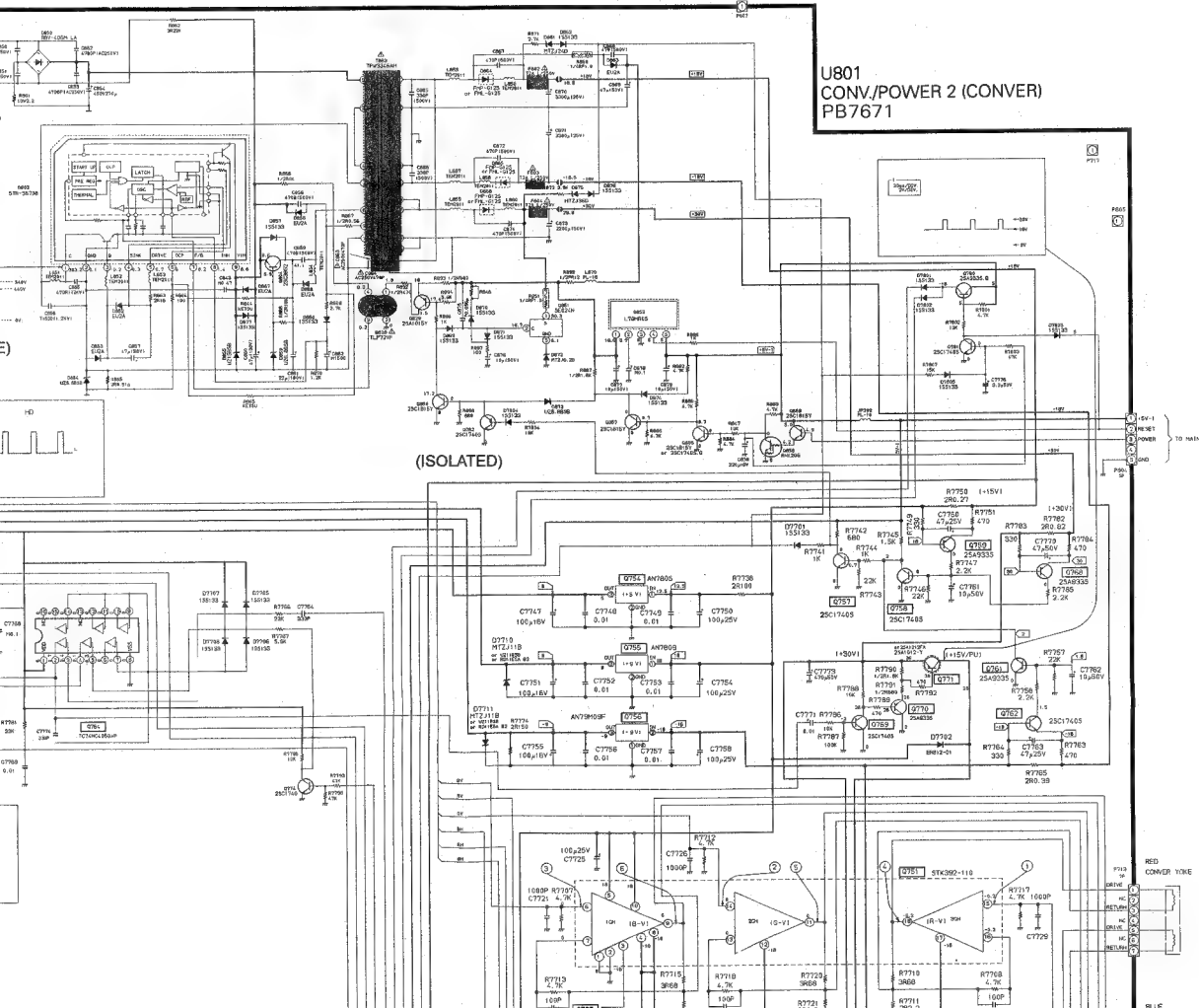
## SCHEMATIC DIAGRAM

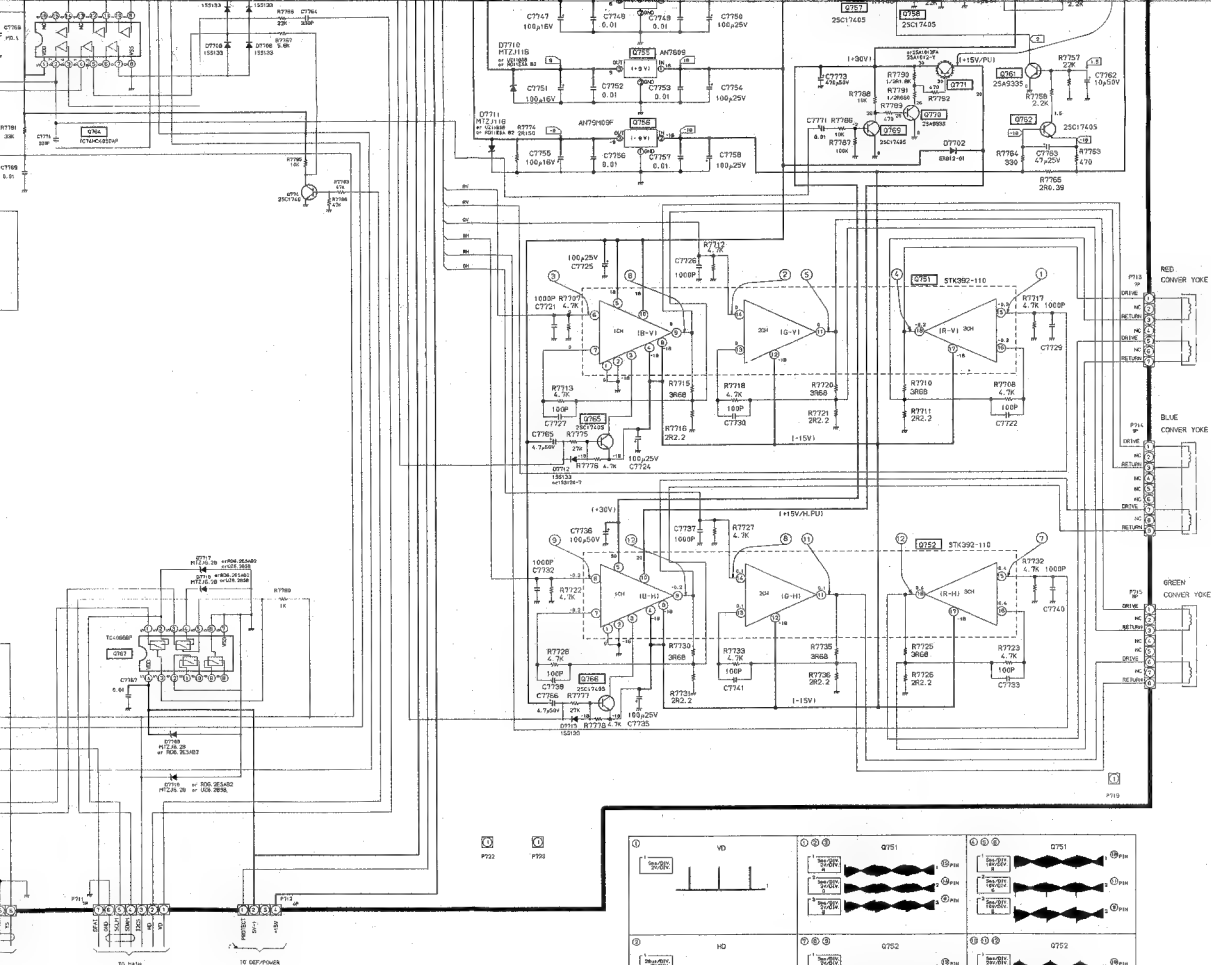
MODEL : AV-48PRO (4/4)  
AV-48PROXU701  
DIGITAL CONV.  
(CONV. CONT.)  
PB7665U802  
AC IN-1 PB7672M038Z  
AC IN PB7673-8



4. This program is designed to be used in the form of copying, so it will be changed to correspond with all its modification systems.

U801  
CONV/POWER 2 (CONVER)  
PB7671





# PARTS LIST

**WARNING:** BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 11 OF THIS MANUAL.

**CAUTION:** The international hazard symbols " $\Delta$ " in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE. Do not degrade the safety of the receiver through improper servicing.

## NOTICE:

• The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.

## ABBREVIATIONS:

Capacitors ..... CD : Ceramic Disk PF : Plastic Film EL : Electrolytic  
Resistors ..... CF : Carbon Film CC : Carbon Composition MF : Metal Film  
OMF : Oxide Metal Film VR : Variable Resistor FR : Fusible Resistor

(All CD and PF capacitors are  $\pm 5\%$ , 50V and all resistors,  $\pm 5\%$ , 1/6W unless otherwise noted.)

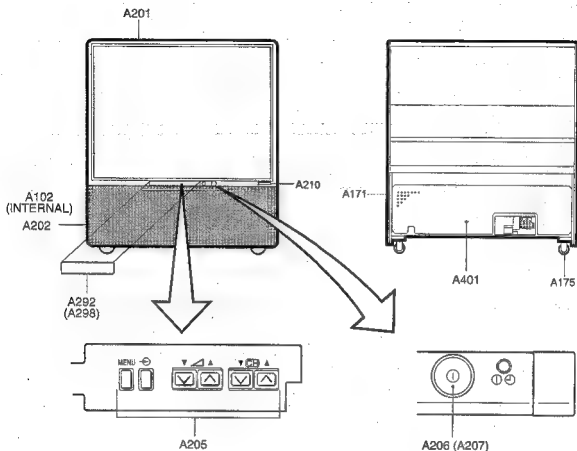
## DIFFERENCE OF PARTS LIST

$\Delta$	Location No.	Parts Name	Parts No.		Description
			AV-48PRO	AV-48PROX	
$\Delta$	U901	SIGNAL Board	23781242	23781248	PB7667
	UM01	TEXT/RGB SW Board	23781243	-----	PB7674
	B251	Model No.Label	23560714	23560767	
	P801	Power Cord	23372053	23372055	
	K902	Remote Hand Unit	23306249	23306252	RM-C265-1 (AV-48PRO) RM-C266-1 (AV-48PROX)

## USING P. W. BOARD

Location No.	Parts No.	Description	
M031Z	23781248	RED DRIVE (CRT) Board	PB7673-1
M032Z	23781250	GREEN DRIVE (CRT) Board	PB7673-2
M033Z	23781251	BLUE DRIVE (CRT) Board	PB7673-3
M034Z	23781252	SVM Board	PB7673-4
M035Z	23781253	RMT IN Board	PB7673-5
M036Z	23781254	FRONT CONT Board	PB7673-6
M037Z	23781255	FRONT IN Board	PB7673-7
M038Z	23781256	AC IN Board	PB7673-8
M039Z	23781257	DPC Board	PB7673-9
U401	23781241	DEF/POWER Board	PB7668
U701	23781240	DIGITAL-CONV. Board	PB7665
U801	23781246	CONV/POWER2 Board	PB7671
U802	23781247	AC-IN-1 Board	PB7672
U901	23781248	SIGNAL Board	PB7674 (AV-48PROX)
U901	23781242	SIGNAL Board	PB7667 (AV-48PRO)
UM01	23781243	TEXT/RGB SW Board	PB7668 (AV-48PRO ONLY)
UV01	23781244	A/V Board	PB7669
UZ01	23781245	COMB/SECAM Board	PB7670
H002	23148282	MVCS45, Multi IF MPX APRO Module	
ZY01	23148284	Multi PIP Module	

## CABINET REPLACEMENT



**CABINET REPLACEMENT PARTS LIST (Refer to P59,60 MECHANICAL DISASSEMBLY)**

△	Location No.	Parts No.	Description
	A102	23421707	Front Cover
	A171	23805157	Handle
	A175	23436566	Caster Ass'y
	A201	23519301	Proper Bezel
	A202	23519818	Speaker Grille ( Inc. Brand Mark)
	A205	23885172	Control Panel
	A206	23444834	Button Power
	A207	23836498	Spring Coil
	A210	23433036	Theater Mark
	A292	23421833	Door Proper
△	A298	23451204	Push Catch
	A401	23622829	Back Board
	K103	23430111	Lens Assembly
	K501	23837497	Lenticular Sheet
	K502	23837435	Fresnel Sheet
	K601	23430116	MIRROR
	B251	23560714	Model No.Label (AV-48PRO)
	B251	23560767	Model No.Label (AV-48PROX)



## CHASSIS REPLACEMENT PARTS LIST

Location No.	Part No.	Description
<b>CAPACITORS</b>		
C101	24796479	EL, 4.7 $\mu$ F, $\pm 20\%$ , 35V
C102	24763221	EL, 220 $\mu$ F, $\pm 20\%$ , 16V
C103	24212103	CD, 0.01 $\mu$ F, $\pm 10\%$
C104	24794470	EL, 47 $\mu$ F, $\pm 20\%$ , 16V
C105	24474102	CD, 1000 $\mu$ F, $\pm 10\%$
C106	24797100	EL, 10 $\mu$ F, $\pm 20\%$ , 50V
C107	24763221	EL, 220 $\mu$ F, $\pm 20\%$ , 16V
C111	24763221	EL, 220 $\mu$ F, $\pm 20\%$ , 16V
C112	24212102	CD, 1000 $\mu$ F, $\pm 10\%$
C113	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
C114	24763101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C115	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
C201	24794100	EL, 10 $\mu$ F, $\pm 20\%$ , 16V
C203	24567104	PF, 0.1 $\mu$ F
C204	24797010	EL, 1 $\mu$ F, $\pm 20\%$ , 50V
C205	24206229	EL, 2.2 $\mu$ F, 50V
C206	24794100	EL, 10 $\mu$ F, $\pm 20\%$ , 16V
C207	24436390	CD, 39pF
C208	24436390	CD, 39pF
C209	24436390	CD, 39pF
C212	24794100	EL, 10 $\mu$ F, $\pm 20\%$ , 16V
C213	24591334	PF, 0.33 $\mu$ F
C303	24214471	CD, 470pF, $\pm 10\%$ , 500V
C305	24817912	EL, 2.2 $\mu$ F, $\pm 10\%$ , 60V
C306	24688332	EL, 3300 $\mu$ F, $\pm 20\%$ , 35V
C307	246893473	PF, 0.047 $\mu$ F, 100V
C308	24688221	EL, 220 $\mu$ F, $\pm 20\%$ , 35V
C309	24212101	CD, 100pF, $\pm 10\%$
C310	24688222	EL, 2200 $\mu$ F, $\pm 20\%$ , 50V
C311	24214561	CD, 660pF, $\pm 10\%$ , 500V
C313	24082057	PF, 0.22 $\mu$ F, 100V
C314	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
C315	24591103	PF, 0.01 $\mu$ F (M039Z)
C315	24797229	EL, 2.2 $\mu$ F, $\pm 20\%$ , 50V (U901)
C318	24617026	EL, 820 $\mu$ F, $\pm 20\%$ , 16V
C319	24691102	PF, 1000pF
C320	24689101	EL, 100 $\mu$ F, $\pm 20\%$ , 50V
C321	24591203	PF, 0.02 $\mu$ F
C322	24617912	EL, 2.2 $\mu$ F, $\pm 10\%$ , 50V
C323	24691224	PF, 0.22 $\mu$ F
C326	24591683	PF, 0.088 $\mu$ F

Location No.	Part No.	Description
C340	24666100	EL, 10 $\mu$ F, $\pm 20\%$ , 16V
C343	24591103	PF, 0.01 $\mu$ F
C350	24591104	PF, 0.1 $\mu$ F
C351	24666222	EL, 2200 $\mu$ F, $\pm 20\%$ , 16V
C370	24666101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C371	24668100	EL, 10 $\mu$ F, $\pm 20\%$ , 35V
C401	24567104	PF, 0.1 $\mu$ F
C403	24591203	PF, 0.02 $\mu$ F
C404	24797229	EL, 2.2 $\mu$ F, $\pm 20\%$ , 50V
C413	24214821	CD, 820pF, $\pm 10\%$ , 500V
C415	24591392	PF, 3900pF
C416	24678100	EL, 10 $\mu$ F, $\pm 20\%$ , 200V
C417	24214391	CD, 390pF, $\pm 10\%$ , 500V
C418	24095883	PF, 0.015 $\mu$ F, $\pm 3\%$ , 630V
C419	24095803	PF, 0.062 $\mu$ F, 400V
C420	24666101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C423	24095779	PF, 0.62 $\mu$ F, 400V
C430	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
C431	24794101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C440	24082323	PF, 1000pF, $\pm 3\%$ , 1500V
C441	24095787	PF, 0.3 $\mu$ F, 400V
C443	24082348	PF, 6800pF, $\pm 3\%$ , 1500V
C444	24082287	PF, 5100pF, $\pm 3\%$ , 1800V
C445	24828473	PF, 0.047 $\mu$ F, 200V
C446	24679330	EL, 33 $\mu$ F, $\pm 20\%$ , 250V
C447	24667102	EL, 1000 $\mu$ F, $\pm 20\%$ , 25V
C448	24640908	EL, 33 $\mu$ F, $\pm 20\%$ , 160V
C458	24667100	EL, 10 $\mu$ F, $\pm 20\%$ , 25V
C459	24669478	EL, 0.47 $\mu$ F, $\pm 20\%$ , 50V
C460	24666331	EL, 330 $\mu$ F, $\pm 20\%$ , 35V
C463	24212152	CD, 1500pF, $\pm 10\%$
C464	24640872	EL, 10 $\mu$ F, $\pm 20\%$ , 100V
C465	24591332	PF, 3300pF
C467	24820183	PF, 0.018 $\mu$ F, 630V
C468	24567474	PF, 0.47 $\mu$ F
C470	24666220	EL, 22 $\mu$ F, $\pm 20\%$ , 16V
C471	24669479	EL, 4.7 $\mu$ F, $\pm 20\%$ , 50V

Location No.	Part No.	Description
C472	24567474	PF, 0.47 $\mu$ F
C473	24567474	PF, 0.47 $\mu$ F
C481	24567104	PF, 0.1 $\mu$ F
C482	24591152	PF, 1500pF
C483	24567224	PF, 0.22 $\mu$ F
C485	24669101	EL, 100 $\mu$ F, $\pm 20\%$ , 50V
C493	24591124	PF, 0.12 $\mu$ F
C501	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , $-20\%$
C502	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , $-20\%$
C503	24763101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C504	24591222	PF, 2200pF
C505	24353120	CD, 12pF
C507	24353120	CD, 12pF
C508	24794100	EL, 10 $\mu$ F, $\pm 20\%$ , 16V
C509	24763101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C510	24763101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C511	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , $-20\%$
C512	24206228	EL, 0.22 $\mu$ F, 50V
C513	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , $-20\%$
C514	24567104	PF, 0.1 $\mu$ F
C515	24567104	PF, 0.1 $\mu$ F
C517	24353010	CD, 1pF
C519	24353010	CD, 1pF
C520	24435561	CD, 5600pF
C521	24353181	CD, 180pF
C530	24212102	CD, 1000pF, $\pm 10\%$
C531	24435181	CD, 150pF
C601	24591102	PF, 1000pF
C602	24591102	PF, 1000pF
C603	24797100	EL, 10 $\mu$ F, $\pm 20\%$ , 50V
C604	24797100	EL, 10 $\mu$ F, $\pm 20\%$ , 50V
C605	24795101	EL, 100 $\mu$ F, $\pm 20\%$ , 25V
C606	24795101	EL, 100 $\mu$ F, $\pm 20\%$ , 25V
C607	24591104	PF, 0.1 $\mu$ F
C608	24591104	PF, 0.1 $\mu$ F
C609	24669102	EL, 1000 $\mu$ F, $\pm 20\%$ , 50V
C610	24669102	EL, 1000 $\mu$ F, $\pm 20\%$ , 50V
C611	24795221	EL, 220 $\mu$ F, $\pm 20\%$ , 25V
C612	24794221	EL, 220 $\mu$ F, $\pm 20\%$ , 16V
C613	24797478	EL, 0.47 $\mu$ F, $\pm 20\%$ , 50V
C614	24797478	EL, 0.47 $\mu$ F, $\pm 20\%$ , 50V
C664	24797479	EL, 4.7 $\mu$ F, $\pm 20\%$ , 50V
C680	24669471	EL, 470 $\mu$ F, $\pm 20\%$ , 50V
C681	24591104	PF, 0.1 $\mu$ F
C701	24781330	Chip, 33pF, SL
C702	24781330	Chip, 33pF, SL
C711	24206100	EL, 10 $\mu$ F, 50V
C714	24092293	Chip, 0.1 $\mu$ F, $\pm 80\%$ , $-20\%$ , 25V
C715	24092441	Chip, 1 $\mu$ F, $\pm 80\%$ , $-20\%$ , 16V
C716	24815822	Chip, 8200pF, $\pm 10\%$
C717	24774470	Chip, 47pF, CH
C718	24774470	Chip, 47pF, CH
C719	24794101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C720	24092293	Chip, 0.1 $\mu$ F, $\pm 80\%$ , $-20\%$ , 25V
C721	24590104	PF, 0.1 $\mu$ F
C722	24092293	Chip, 0.1 $\mu$ F, $\pm 80\%$ , $-20\%$ , 25V
C724	24092293	Chip, 0.1 $\mu$ F, $\pm 80\%$ , $-20\%$ , 25V
C725	24092293	Chip, 0.1 $\mu$ F, $\pm 80\%$ , $-20\%$ , 25V
C726	24092293	Chip, 0.1 $\mu$ F, $\pm 80\%$ , $-20\%$ , 25V
C727	24092293	Chip, 0.1 $\mu$ F, $\pm 80\%$ , $-20\%$ , 25V
C728	24763221	EL, 220 $\mu$ F, $\pm 20\%$ , 16V
C729	24092293	Chip, 0.1 $\mu$ F, $\pm 80\%$ , $-20\%$ , 25V
C730	24590104	PF, 0.1 $\mu$ F

Location No.	Part No.	Description
C731	24766010	EL, 1.0 $\mu$ F, $\pm 20\%$ , 50V
C732	24590822	PF, 8200pF
C735	24092293	Chip, 0.1 $\mu$ F, $\pm 80\%$ , $-20\%$ , 25V
C736	24794470	EL, 47 $\mu$ F, $\pm 20\%$ , 16V
C739	24092293	Chip, 0.1 $\mu$ F, $\pm 80\%$ , $-20\%$ , 25V
C740	24092293	Chip, 0.1 $\mu$ F, $\pm 80\%$ , $-20\%$ , 25V
C741	24794470	EL, 47 $\mu$ F, $\pm 20\%$ , 16V
C742	24794470	EL, 47 $\mu$ F, $\pm 20\%$ , 16V
C743	24092293	Chip, 0.1 $\mu$ F, $\pm 80\%$ , $-20\%$ , 25V
C744	24092293	Chip, 0.1 $\mu$ F, $\pm 80\%$ , $-20\%$ , 25V
C745	24794470	EL, 47 $\mu$ F, $\pm 20\%$ , 16V
C746	24794470	EL, 47 $\mu$ F, $\pm 20\%$ , 16V
C747	24092293	Chip, 0.1 $\mu$ F, $\pm 80\%$ , $-20\%$ , 25V
C748	24092293	Chip, 0.1 $\mu$ F, $\pm 80\%$ , $-20\%$ , 25V
C749	24794470	EL, 47 $\mu$ F, $\pm 20\%$ , 16V
C750	24794470	EL, 47 $\mu$ F, $\pm 20\%$ , 16V
C756	24781330	Chip, 33pF, SL
C761	24590182	PF, 1800pF
C762	24590562	PF, 5600pF
C763	24774391	Chip, 390pF
C765	24590182	PF, 1800pF
C766	24590562	PF, 5600pF
C767	24774391	Chip, 390pF
C769	24590182	PF, 1800pF
C770	24590562	PF, 5600pF
C771	24774391	Chip, 390pF
C773	24590182	PF, 1800pF
C774	24590562	PF, 5600pF
C775	24774391	Chip, 390pF
C777	24590182	PF, 1800pF
C778	24590562	PF, 5600pF
C779	24774391	Chip, 390pF
C781	24590182	PF, 1800pF
C782	24590562	PF, 5600pF
C783	24774391	Chip, 390pF
C795	24761221	EL, 220 $\mu$ F, $\pm 20\%$ , 6.3V
C798	24763101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C799	24763101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
△C801	24082374	PF, 0.22 $\mu$ F, AC250V
△C802	24082318	PF, 0.1 $\mu$ F, $\pm 20\%$ , AC250V
△C803	24082194	PF, 0.22 $\mu$ F, $\pm 20\%$ , AC250V
△C804	24082374	PF, 0.22 $\mu$ F, AC250V
C805	24092281	CD, 4700pF, $\pm 20\%$ , AC250V
C806	24092281	CD, 4700pF, $\pm 20\%$ , AC250V
C808	24669221	EL, 220 $\mu$ F, $\pm 20\%$ , 50V
C809	24214471	CD, 470pF, $\pm 10\%$ , 500V
C810	24086043	EL, 820 $\mu$ F, $\pm 20\%$ , 450V
△C811	24092567	CD, 1000pF $\pm 20\%$ , AC250V (U401)
△C812	24092565	CD, 470pF $\pm 10\%$ , AC250V (U802)
△C815	24092565	CD, 470pF, $\pm 10\%$ , AC250V
C816	24094653	CD, 220pF, $\pm 20\%$ , AC400V
C817	24667221	EL, 220 $\mu$ F, $\pm 20\%$ , 25V
C818	24092341	CD, 470pF, $\pm 10\%$ , 2kV
△C819	24095931	PF, 2200pF, 1250V
C820	24092565	CD, 470pF, $\pm 10\%$ , AC250V
△C821	24082374	PF, 0.22 $\mu$ F, AC250V
C829	24090152	PF, 1500pF
C832	24539474	PF, 0.47 $\mu$ F
C833	24669479	EL, 4.7 $\mu$ F $\pm 20\%$ , 50V (U401)
C833	24539474	PF, 0.47 $\mu$ F (U901)
C834	24539334	PF, 0.33 $\mu$ F
C835	24203470	EL, 47 $\mu$ F, $\pm 20\%$ , 16V
C836	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , $-20\%$

Location No.	Part No.	Description
R7791	24552681	OMF, 680 ohm, 1/2W
R7792	24366471	CF, 470 ohm
R7793	24366473	CF, 47k ohm
R7795	24366103	CF, 10k ohm
R7796	24366473	CF, 47k ohm
R7801	24366472	CF, 4700 ohm
R7802	24366103	CF, 10k ohm
R7803	24366473	CF, 47k ohm
R7804	24366103	CF, 10k ohm
R7807	24366153	CF, 15k ohm
RA01	24366470	CF, 47 ohm
RA02	24366272	CF, 2700 ohm
RA03	24366102	CF, 1k ohm
RA04	24366102	CF, 1k ohm
RA05	24366102	CF, 1k ohm
RA07	24366102	CF, 1k ohm
RA08	24366102	CF, 1k ohm
RA13	24366682	CF, 6800 ohm
RA16	24366102	CF, 1k ohm
RA17	24366102	CF, 1k ohm
RA18	24366102	CF, 1k ohm
RA22	24366331	CF, 330 ohm
RA23	24366331	CF, 330 ohm
RA24	24366331	CF, 330 ohm
RA26	24366101	CF, 100 ohm
RA26	24366102	CF, 1k ohm
RA27	24366102	CF, 1k ohm
RA33	24366103	CF, 10k ohm
RA36	24366102	CF, 1k ohm
RA36	24366472	CF, 4700 ohm
RA37	24366101	CF, 100 ohm
RA38	24366101	CF, 100 ohm
RA40	24366331	CF, 330 ohm
RA41	24366331	CF, 330 ohm
RA61	24366103	CF, 10k ohm
RA62	24366103	CF, 10k ohm
RA67	24366472	CF, 4700 ohm
RA68	24366472	CF, 4700 ohm
RA70	24366333	CF, 33k ohm
RA71	24366683	CF, 68k ohm
RA72	24366223	CF, 22k ohm
RA73	24366103	CF, 10k ohm
RA75	24366333	CF, 33k ohm
RA76	24366103	CF, 10k ohm (M0362)
RA76	24366102	CF, 1k ohm (U901)
RA77	24366223	CF, 22k ohm
RA79	24366332	CF, 3300 ohm
RA80	24366332	CF, 3300 ohm
RA85	24366101	CF, 100 ohm
RA86	24366101	CF, 100 ohm
RB01	24366271	CF, 270 ohm
RB02	24366221	CF, 220 ohm
RB03	24366101	CF, 100 ohm
RB04	24366223	CF, 22k ohm
RB05	24366471	CF, 470 ohm
RB09	24366470	CF, 47 ohm
RB11	24366103	CF, 10k ohm
RB30	24366103	CF, 10k ohm
RB40	24366103	CF, 10k ohm
RB41	24366821	CF, 820 ohm
RB42	24366153	CF, 15k ohm
RB43	24366103	CF, 10k ohm
RB44	24366103	CF, 10k ohm
RB45	24366101	CF, 100 ohm

Location No.	Part No.	Description
RB61	24366473	CF, 47k ohm
RB62	24366222	CF, 2200 ohm
RB63	24366473	CF, 47k ohm
RB64	24366473	CF, 47k ohm
RB65	24366104	CF, 100k ohm
RB66	24366222	CF, 2200 ohm
RB67	24366473	CF, 47k ohm
RB68	24366103	CF, 10k ohm
RB69	24366332	CF, 3300 ohm
RB70	24366562	CF, 5600 ohm
RB71	24366473	CF, 47k ohm
RB72	24366223	CF, 22k ohm
RB90	24366472	CF, 4700 ohm
RB91	24366472	CF, 4700 ohm
RB92	24366101	CF, 100 ohm
RB93	24366101	CF, 100 ohm
RB94	24366472	CF, 4700 ohm
RB95	24366101	CF, 100 ohm
RB96	24366101	CF, 100 ohm
RB97	24366472	CF, 4700 ohm
RB98	24366101	CF, 100 ohm
RD80	24366822	CF, 8200 ohm
RD82	24366472	CF, 4700 ohm
RD83	24366102	CF, 1k ohm
RG01	24366223	CF, 22k ohm
RG02	24366223	CF, 22k ohm
RG03	24366101	CF, 100 ohm
RG04	24366101	CF, 100 ohm
RG09	24366472	CF, 4700 ohm
RG10	24366822	CF, 8200 ohm
RG11	24366472	CF, 4700 ohm
RG12	24366822	CF, 8200 ohm
RO01	24366102	CF, 1k ohm
RO02	24366475	CF, 4.7M ohm
RO03	24366102	CF, 1k ohm
RO04	24366511	CF, 510 ohm
RO05	24366471	CF, 470 ohm
RO06	24366471	CF, 470 ohm
RO07	24366103	CF, 10k ohm
RO08	24366102	CF, 1k ohm
RO09	24366102	CF, 1k ohm
RO10	24366102	CF, 1k ohm
RO11	24366561	CF, 560 ohm
RO12	24366561	CF, 560 ohm
RO13	24366203	CF, 20k ohm
RO14	24366273	CF, 27k ohm
RR01	24366472	CF, 4700 ohm
RR02	24366472	CF, 4700 ohm
RR03	24366472	CF, 4700 ohm
RR100	24366102	CF, 1k ohm
RR101	24366102	CF, 1k ohm
RR102	24366102	CF, 1k ohm
RR12	24366223	CF, 22k ohm
RR17	24366102	CF, 1k ohm
RR18	24366102	CF, 1k ohm
RR21	24366103	CF, 10k ohm
RR22	24366473	CF, 47k ohm
RR23	24366101	CF, 100 ohm
RR24	24366101	CF, 100 ohm
RR25	24366101	CF, 100 ohm
RR26	24366101	CF, 100 ohm
RR27	24366473	CF, 47k ohm
RR28	24366473	CF, 47k ohm
RR29	24366473	CF, 47k ohm

Location No.	Part No.	Description
RR30	24366512	CF, 5100 ohm
RR33	24366821	CF, 820 ohm
RR34	24366821	CF, 820 ohm
RR35	24366821	CF, 820 ohm
RR36	24366332	CF, 3300 ohm
RR37	24366332	CF, 3300 ohm
RR38	24366332	CF, 3300 ohm
RR39	24366222	CF, 2200 ohm
RR40	24366122	CF, 1200 ohm (U901)
RR40	24366683	CF, 68k ohm (UM01)
RR41	24366103	CF, 10k ohm (UM01)
RR41	24366272	CF, 2700 ohm (U901)
RR42	24366122	CF, 1200 ohm
RR43	24366272	CF, 2700 ohm
RR44	24366122	CF, 1200 ohm
RR45	24366272	CF, 2700 ohm
RR94	24366222	CF, 2200 ohm
RR95	24366331	CF, 330 ohm
RR96	24366331	CF, 330 ohm
RR97	24366331	CF, 330 ohm
RR98	24366331	CF, 330 ohm
RR99	24366102	CF, 1k ohm
RS01	24366101	CF, 100 ohm
RS03	24366101	CF, 100 ohm
RS04	24366101	CF, 100 ohm
RS05	24366102	CF, 1k ohm
RS07	24366472	CF, 4700 ohm
RS08	24366472	CF, 4700 ohm
RS09	24366472	CF, 4700 ohm
RS10	24366472	CF, 4700 ohm
RS11	24366472	CF, 4700 ohm
RS12	24366472	CF, 4700 ohm
RS13	24366101	CF, 100 ohm
RS14	24366101	CF, 100 ohm
RS25	24366103	CF, 10k ohm
RS26	24366103	CF, 10k ohm
RS27	24366561	CF, 560 ohm
RS28	24366561	CF, 560 ohm
RS29	24366103	CF, 10k ohm
RS30	24366103	CF, 10k ohm
RS31	24366102	CF, 1k ohm
RS32	24366103	CF, 10k ohm
RS33	24366101	CF, 100 ohm
RS34	24366102	CF, 1k ohm
RS35	24366101	CF, 100 ohm
RS36	24366102	CF, 1k ohm
RS45	24366393	CF, 39k ohm
RS46	24366393	CF, 39k ohm
RS601	24366101	CF, 100 ohm
RS602	24366101	CF, 100 ohm
RS603	24366102	CF, 1k ohm
RS604	24366102	CF, 1k ohm
RS605	24366561	CF, 560 ohm
RS606	24366561	CF, 560 ohm
RS607	24366104	CF, 100k ohm
RS608	24366104	CF, 100k ohm
RS609	24366103	CF, 10k ohm
RS610	24366103	CF, 10k ohm
RS611	24366103	CF, 10k ohm
RS612	24366104	CF, 100k ohm
RT01	24366332	CF, 3300 ohm
RT02	24366100	CF, 10 ohm
RT03	24366101	CF, 100 ohm
RT04	24366273	CF, 27k ohm

Location No.	Part No.	Description
RT05	24366103	CF, 10k ohm
RT06	24366103	CF, 10k ohm
RT07	24366102	CF, 1k ohm
RT08	24366103	CF, 10k ohm
RT09	24366101	CF, 100 ohm
RT10	24366472	CF, 4700 ohm
RT11	24366392	CF, 3900 ohm
RT12	24366682	CF, 6800 ohm
RT13	24366103	CF, 10k ohm
RT14	24366222	CF, 2200 ohm
RT15	24366101	CF, 100 ohm
RT16	24366101	CF, 100 ohm
RT17	24366102	CF, 1k ohm
RT18	24366152	CF, 1500 ohm
RT19	24366122	CF, 1200 ohm
RT20	24366471	CF, 470 ohm
RT21	24366561	CF, 560 ohm
RT22	24366271	CF, 270 ohm
RT23	24366821	CF, 820 ohm
RV01	24366101	CF, 100 ohm
RV02	24366101	CF, 100 ohm
RV03	24366101	CF, 100 ohm
RV04	24366101	CF, 100 ohm
RV05	24366101	CF, 100 ohm
RV06	24366101	CF, 100 ohm
RV09	24366101	CF, 100 ohm
RV10	24366101	CF, 100 ohm
RV11	24366101	CF, 100 ohm
RV12	24366101	CF, 100 ohm
RV13	24366101	CF, 100 ohm
RV14	24366101	CF, 100 ohm
RV15	24366101	CF, 100 ohm
RV16	24366101	CF, 100 ohm
RV17	24366101	CF, 100 ohm
RV19	24366101	CF, 100 ohm
RV20	24366332	CF, 3300 ohm
RV35	24366103	CF, 10k ohm
RV37	24366750	CF, 75 ohm
RV40	24366822	CF, 8200 ohm
RV41	24366472	CF, 4700 ohm
RV42	24366471	CF, 470 ohm
RV43	24366471	CF, 470 ohm
RV44	24366821	CF, 820 ohm
RV45	24366151	CF, 150 ohm
RV46	24366102	CF, 1k ohm
RV47	24366102	CF, 1k ohm
RV48	24366911	CF, 910 ohm
RV49	24366102	CF, 1k ohm
RV50	24366682	CF, 6800 ohm
RV51	24366822	CF, 8200 ohm
RV52	24366101	CF, 100 ohm
RV53	24366471	CF, 470 ohm
RV54	24366471	CF, 470 ohm
RV56	24366511	CF, 510 ohm
RV57	24366102	CF, 1k ohm
RV58	24366911	CF, 910 ohm
RV59	24366102	CF, 1k ohm
RV60	24366682	CF, 6800 ohm
RV61	24366750	CF, 75 ohm
RV65	24366103	CF, 10k ohm
RV67	24366750	CF, 75 ohm
RV68	24366103	CF, 10k ohm
RV70	24366750	CF, 75 ohm
RV75	24366750	CF, 75 ohm

Location No.	Part No.	Description
RV76	24366103	CF, 10k ohm
RV77	24366101	CF, 100 ohm
RV78	24366181	CF, 180 ohm
RV80	24366682	CF, 6800 ohm
RV84	24366101	CF, 100 ohm
RV85	24366201	CF, 200 ohm
RV89	24366750	CF, 75 ohm
RV91	24552101	OMF, 100 ohm, 1/2W
RV95	24366471	CF, 470 ohm
RV100	24366101	CF, 100 ohm
RV101	24366272	CF, 2700 ohm
RV102	24366271	CF, 270 ohm
RV103	24366473	CF, 47k ohm
RV104	24366100	CF, 10 ohm
RV105	24366272	CF, 2700 ohm
RV106	24366223	CF, 22k ohm
RV107	24366223	CF, 22k ohm
RV108	24366103	CF, 10k ohm
RV109	24366103	CF, 10k ohm
RV110	24366123	CF, 12k ohm
RV111	24366103	CF, 10k ohm
RW02	24366222	CF, 2200 ohm
RW09	24366563	CF, 56k ohm
RW13	24366393	CF, 39k ohm
RW14	24552121	OMF, 120 ohm, 1/2W
RW16	24366223	CF, 22k ohm
RW16	24366273	CF, 27k ohm
RW17	24366333	CF, 33k ohm
RW18	24366222	CF, 2200 ohm
RW19	24366392	CF, 3900 ohm
RW20	24366392	CF, 3900 ohm
RW21	24366102	CF, 1k ohm
RW22	24552471	OMF, 470 ohm, 1/2W
RW23	24366471	CF, 470 ohm
RW24	24366470	CF, 47 ohm
RW25	24366182	CF, 1800 ohm
RW30	24552100	OMF, 10 ohm, 1/2W
RW31	24552331	OMF, 330 ohm, 1/2W
RW32	24366820	CF, 82 ohm
RW33	24366683	CF, 68k ohm
RW34	24366820	CF, 82 ohm
RW35	24366683	CF, 68k ohm
RW36	24552620	OMF, 62 ohm, 1/2W
RW37	24366152	CF, 1500 ohm
RW38	24366123	CF, 12k ohm
RW39	24366152	CF, 1500 ohm
RW40	24552620	OMF, 62 ohm, 1/2W
RW41	24321279	MF, 2.7 ohm, 1/2W
RW42	24321279	MF, 2.7 ohm, 1/2W
RW43	24554221	OMF, 220 ohm, 2W
RW44	24366122	CF, 1200 ohm
RW45	24366122	CF, 1200 ohm
RY604	24366123	CF, 12k ohm
RY605	24366682	CF, 6800 ohm
RY606	24366333	CF, 33k ohm
RY607	24366392	CF, 3900 ohm
RY608	24366123	CF, 12k ohm
RY609	24366102	CF, 1k ohm
RY610	24366104	CF, 100k ohm
RY611	24366473	CF, 47k ohm
RY612	24366102	CF, 1k ohm
RY613	24382121	OMF, 120 ohm, 1W
RY614	24366103	CF, 10k ohm
RY615	24366223	CF, 22k ohm

Location No.	Part No.	Description
RY616	24366104	CF, 100k ohm
RY617	24366183	CF, 18k ohm
RY631	24366100	CF, 10 ohm
RY632	24366100	CF, 10 ohm
RZ01	24366471	CF, 470 ohm
RZ02	24366152	CF, 1500 ohm
RZ04	24366332	CF, 3300 ohm
RZ05	24366332	CF, 3300 ohm
RZ06	24366821	CF, 820 ohm
RZ07	24366822	CF, 8200 ohm
RZ08	24366332	CF, 3300 ohm
RZ12	24366471	CF, 470 ohm
RZ14	24366123	CF, 12k ohm
RZ15	24366392	CF, 3900 ohm
RZ16	24366122	CF, 1200 ohm
RZ17	24366331	CF, 330 ohm
RZ18	24366821	CF, 820 ohm
RZ19	24366471	CF, 470 ohm
RZ20	24366122	CF, 1200 ohm
RZ22	24366101	CF, 100 ohm
RZ23	24366821	CF, 820 ohm
RZ24	24366821	CF, 820 ohm
RZ25	24366101	CF, 100 ohm
RZ26	24366101	CF, 100 ohm
RZ28	24366564	CF, 560k ohm
RZ29	24366331	CF, 330 ohm
RZ30	24366331	CF, 330 ohm
RZ31	24366102	CF, 1k ohm

COILS & TRANSFORMERS		
L101	23289101	Coil, Peaking, TRF4101AF
L102	23289100	Coil, Peaking, TRF4100AF
L103	23289100	Coil, Peaking, TRF4100AF
L111	23237999	Coil, Peaking, TRF4109AC
L112	23237999	Coil, Peaking, TRF4109AC
L115	23103824	Coil, TEM2028K
L117	23237983	Coil, Peaking, TRF4220AC
L301	23103859	Coil (Ferrite Bead), TEM2011
L303	23237975	Coil, Peaking, TRF4101AC
L400	23289100	Coil, Peaking, TRF4100AF
L401	23221746	Coil, Choke, TLN3155D
L402	23289220	Coil, Peaking, TRF4220AF
L441	23233947	Coil, Linearity, TLN2144G
L450	23233961	Coil, Width, TLN2184
L461	23248175	Coil, Choke, TLN3325AD
ΔL462	23231135	Deflection Yoke, TDY707AS(R)
ΔL463	23231136	Deflection Yoke, TDY707AS(G)
ΔL464	23231137	Deflection Yoke, TDY707AS(B)
L465	23103880	Coil (Ferrite Bead), TEM2011Y
L472	23102445	Magnet, MAG-1096
L473	23102445	Magnet, MAG-1096
L474	23102445	Magnet, MAG-1096
L501	23289470	Coil, Peaking, TRF4470AF
L502	23289470	Coil, Peaking, TRF4470AF
L503	23289470	Coil, Peaking, TRF4470AF
L504	23289479	Coil, Peaking, TRF4470AF
L701	23238562	Coil, Peaking, TRF4109AJ
L702	23238562	Coil, Peaking, TRF4109AJ
L707	23238562	Coil, Peaking, TRF4109AJ
L708	23238562	Coil, Peaking, TRF4109AJ
L709	23238562	Coil, Peaking, TRF4109AJ
L710	23238562	Coil, Peaking, TRF4109AJ
L711	23238562	Coil, Peaking, TRF4109AJ
L712	23238562	Coil, Peaking, TRF4109AJ

Location No.	Part No.	Description
L713	23238562	Coil, Peaking, TRF4109AJ
L714	23238562	Coil, Peaking, TRF4109AJ
L719	23232878	Coil, Variable, TRF3503K
L720	23289102	Coil, Peaking, TRF4102AJ
L721	23237805	Coil, Peaking, TRF4222
L722	23289102	Coil, Peaking, TRF4102AJ
L723	23237805	Coil, Peaking, TRF4222
L724	23289102	Coil, Peaking, TRF4102AJ
L725	23237805	Coil, Peaking, TRF4222
L726	23289102	Coil, Peaking, TRF4102AJ
L727	23237805	Coil, Peaking, TRF4222
L728	23289102	Coil, Peaking, TRF4102AJ
L729	23237805	Coil, Peaking, TRF4222
L730	23289102	Coil, Peaking, TRF4102AJ
L731	23237805	Coil, Peaking, TRF4222
L737	23289560	Coil, Peaking, TRF4560
L738	23289560	Coil, Peaking, TRF4560
L739	23289560	Coil, Peaking, TRF4560
L740	23289560	Coil, Peaking, TRF4560
L742	23103866	Chip (Ferrite Bead), TEM2105T
L743	23103866	Chip (Ferrite Bead), TEM2105T
L744	23103866	Chip (Ferrite Bead), TEM2105T
L745	23103866	Chip (Ferrite Bead), TEM2105T
L746	23103866	Chip (Ferrite Bead), TEM2105T
L747	23103866	Chip (Ferrite Bead), TEM2105T
L748	23103866	Chip (Ferrite Bead), TEM2105T
L749	23103866	Chip (Ferrite Bead), TEM2105T
L811	23103859	Coil (Ferrite Bead), TEM2011
L812	23103859	Coil (Ferrite Bead), TEM2011
L813	23103859	Coil (Ferrite Bead), TEM2011
L814	23221747	Coil, Choke, TRF9253D
L851	23103859	Coil (Ferrite Bead), TEM2011
L852	23103859	Coil (Ferrite Bead), TEM2011
L853	23103859	Coil (Ferrite Bead), TEM2011
L854	23103859	Coil (Ferrite Bead), TEM2011
L855	23103859	Coil (Ferrite Bead), TEM2011
L856	23103859	Coil (Ferrite Bead), TEM2011
L857	23103859	Coil (Ferrite Bead), TEM2011
L858	23103859	Coil (Ferrite Bead), TEM2011
L859	23103859	Coil (Ferrite Bead), TEM2011
L860	23103859	Coil (Ferrite Bead), TEM2011
L870	23238711	Coil, Peaking, TRF4180AJ
L882	23280016	Coil, Peaking, TRF4100AZ
L883	23103859	Coil (Ferrite Bead), TEM2011
L885	23248073	Coil, Choke, TLN3299D
L886	23103859	Coil (Ferrite Bead), TEM2011
L888	23103859	Coil (Ferrite Bead), TEM2011
L889	23248087	Coil, Choke, TLN3312D
L891	23103859	Coil (Ferrite Bead), TEM2011
L896	23103859	Coil (Ferrite Bead), TEM2011
L911	23237987	Coil, Peaking, TRF4100AC
L961	23237987	Coil, Peaking, TRF4100AC
L962	23237991	Coil, Peaking, TRF4479AC
L963	23237975	Coil, Peaking, TRF4101AC
L7701	23103859	Coil (Ferrite Bead), TEM2011
L7702	23103859	Coil (Ferrite Bead), TEM2011
L7703	23103859	Coil (Ferrite Bead), TEM2011
L7704	23103859	Coil (Ferrite Bead), TEM2011
L7705	23103859	Coil (Ferrite Bead), TEM2011
L7706	23103859	Coil (Ferrite Bead), TEM2011
L7707	23103859	Coil (Ferrite Bead), TEM2011
L7708	23103859	Coil (Ferrite Bead), TEM2011
LA01	23289100	Coil, Peaking, TRF4100AF
LB01	23262996	Coil, IF, TRF1168D

Location No.	Part No.	Description
L001	23238709	Coil, Peaking, TRF4270AJ
L002	23238718	Coil, Peaking, TRF4479AJ
L003	23238718	Coil, Peaking, TRF4479AJ
L004	23238718	Coil, Peaking, TRF4479AJ
LT01	23289339	Coil, Peaking, TRF4383AF
LT02	23238562	Coil, Peaking, TRF4109AJ
LT03	23289150	Coil, Peaking, TRF4150AF
LT04	23238714	Coil, Peaking, TRF4100AJ
LT05	23238714	Coil, Peaking, TRF4100AJ
LT06	23238714	Coil, Peaking, TRF4100AJ
LT07	23238714	Coil, Peaking, TRF4100AJ
LT08	23103859	Coil (Ferrite Bead), TEM2011
LT09	23238714	Coil, Peaking, TRF4100AJ
LT10	23238506	Coil, Peaking, TRF4229AJ
LT11	23238714	Coil, Peaking, TRF4100AJ
LT12	23238506	Coil, Peaking, TRF4229AJ
LT13	23238506	Coil, Peaking, TRF4229AJ
LT15	23238710	Coil, Peaking, TRF4220AJ
LV01	23103824	Coil, TEM2028K
LV02	23103824	Coil, TEM2028K
LV40	23238709	Coil, Peaking, TRF4270AJ
LV41	23289270	Coil, Peaking, TRF4270AF
LV44	23238705	Coil, Peaking, TRF4560AJ
LV45	23289150	Coil, Peaking, TRF4150AF
LV47	23289100	Coil, Peaking, TRF4100AF (LV01)
LV47	23238705	Coil, Peaking, TRF4560AJ (MZ0372)
LV48	23289100	Coil, Peaking, TRF4100AF
LV49	23289100	Coil, Peaking, TRF4100AF
LV50	23237983	Coil, Peaking, TRF4220AC
LW02	23261974	Coil, Choke, HCB-035
WV04	23103859	Coil (Ferrite Bead), TEM2011
LW05	23103859	Coil (Ferrite Bead), TEM2011
LY01	23289100	Coil, Peaking, TRF4100AF
LZ01	23238712	Coil, Peaking, TRF4150AJ
LZ02	23238716	Coil, Peaking, TRF4889AJ
LZ03	23238716	Coil, Peaking, TRF4889AJ
LZ04	23238709	Coil, Peaking, TRF4270AJ
LZ05	23238716	Coil, Peaking, TRF4889AJ
LZ06	23238709	Coil, Peaking, TRF4270AJ
LZ07	23238709	Coil, Peaking, TRF4270AJ
LZ08	23238707	Coil, Peaking, TRF4390AJ
LZ09	70131060	Filter, ZBF253D-00
LZ10	70131060	Filter, ZBF253D-00
LZ11	23238709	Coil, Peaking, TRF4270AJ
T400	23224364	Transformer, Focus, TLN2168AH
T401	23224367	Transformer, Horiz. Drive, TLN1098AH
△T461Z	23238508	Transformer, Flyback, TFB30782D
△T801	23211700	Line Filter, TRF3209AQ
△T802	23211700	Line Filter, TRF3209AQ
△T803	23211666	Line Filter, TRF3197
△T804	23211002	Line Filter, TRF3173
△T806	23211666	Line Filter, TRF3197
△T862	23217325	Transformer, Converter, TPW3345AM
△T863	23217326	Transformer, Converter, TPW3346AM
<b>SEMICONDUCTORS</b>		
Q201	23114528	Transistor, 2SC1740S-Q
Q202	23114528	Transistor, 2SC1740S-Q
Q203	A6734590	Transistor, 2SC762(G)TM-Y

Location No.	Part No.	Description
Q204	23114528	Transistor, 2SC1740S-Q
Q301	23319787	IC, LA7833S
Q302	B0384625	IC, TA8859CP
Q340	A6317440	Transistor, 2SC1815-Y
Q341	A6534053	Transistor, 2SA1015-Y(TE)
Q350	A6317440	Transistor, 2SC1815-Y
Q351	A6534053	Transistor, 2SA1015-Y(TE)
Q352	A6002030	Transistor, RN1203
Q353	A6002030	Transistor, RN1203
Q370	23114530	Transistor, 2SA933S-Q
Q402	A6330069	Transistor, 2SC2482 FA-1
Q404	A6872801	Transistor, 2SD2253(FA)
Q420	23314141	Transistor, 2SC3852
Q421	23114528	Transistor, 2SC1740S-Q
Q430	23314141	Transistor, 2SC3852
Q460	23314850	Transistor, 2SA1788-E
Q461	A6317440	Transistor, 2SC1815-Y
Q462	A6317440	Transistor, 2SC1815-Y
Q463	23114528	Transistor, 2SC1740S-Q
Q464	A6534053	Transistor, 2SA1015-Y(TE)
Q470	23114528	Transistor, 2SC1740S-Q
Q480	23314246	Transistor, 2SC2023 LF-4
Q483	B0350510	IC, TA7548S
Q487	A6317440	Transistor, 2SC1815-Y
Q488	A6002040	Transistor, RN1204
Q489	A6012020	Transistor, RN2202
Q501	B0385673	IC, TA1222AN
Q502	23114528	Transistor, 2SC1740S-Q
Q503	23114528	Transistor, 2SC1740S-Q
Q510	23114528	Transistor, 2SC1740S-Q
Q601	23318413	IC, LA4282
Q612	23114530	Transistor, 2SA933S-Q
Q681	A6342206	Transistor, 2SC2878-A(TE)
Q682	A6342206	Transistor, 2SC2878-A(TE)
Q701	B0588213	IC, T7K64(Z)
Q703	23905014	IC, LC78818M
Q704	23905014	IC, LC78818M
Q705	23905014	IC, LC78818M
Q707	B0379550	IC, TA8667P
Q709	A6734590	Transistor, 2SC752(G)TM-Y
Q710	23314204	Transistor, 2SC2412K,Q
Q713	23905012	IC, CAT24C16
Q715	23319808	IC, M5218AP
Q717	23319808	IC, M5218AP
Q719	23319808	IC, M5218AP
Q751	23905094	IC, STK392-110
Q752	23905094	IC, STK392-110
Q754	23904521	IC, AN7805
Q755	23904525	IC, AN7809
Q756	23318841	IC, AN79M09F
Q757	23114528	Transistor, 2SC1740S-Q
Q758	23114528	Transistor, 2SC1740S-Q
Q759	23114530	Transistor, 2SA933S-Q
Q761	23114530	Transistor, 2SA933S-Q
Q762	23114528	Transistor, 2SC1740S-Q
Q764	B0487575	IC, TC74HC4050AP
Q765	23114528	Transistor, 2SC1740S-Q
Q766	23114528	Transistor, 2SC1740S-Q
Q767	B0470662	IC, TC4066BP
Q768	23114530	Transistor, 2SA933S-Q
Q769	23114528	Transistor, 2SC1740S-Q

Location No.	Part No.	Description
Q770	23114530	Transistor, 2SA933S-Q
Q771	23033730	Transistor, 2SA1012-Y
Q771B	23035308	Screw, BTR3X85ZN
Q774	23114528	Transistor, 2SC1740S-Q
Q780	23114530	Transistor, 2SA933S-Q
Q781	23114528	Transistor, 2SC1740S-Q
Q782	23114528	Transistor, 2SC1740S-Q
Q801	23905094	IC, STR-S6709
Q802	23314141	Transistor, 2SC3852
Q803	23904247	IC, STR-S6708
Q804	23314141	Transistor, 2SC3852
Q826	A8645166	Photo Coupler, TLP721F(D4-G)
Q828	A8645166	Photo Coupler, TLP721F(D4-G)
Q829	A6534053	Transistor, 2SA1015-Y(TE)
Q831	23904521	IC, AN7805
Q832	23904274	IC, PQ09RF11
Q835	23319941	IC, SI-3050C
Q836	A6317440	Transistor, 2SC1815-Y
Q837	A6317440	Transistor, 2SC1815-Y
Q845	A6002050	Transistor, RN1205
Q846	A6317440	Transistor, 2SC1815-Y
Q850	A6534053	Transistor, 2SA1015-Y(TE) (U401)
Q850	A6317440	Transistor, 2SC1815-Y (U801)
Q851	23905251	IC, SE024N
Q852	23318299	IC, L78MR05
Q855	23114528	Transistor, 2SC1740S-Q
Q857	A6317440	Transistor, 2SC1815-Y
Q858	A6002050	Transistor, RN1205
Q859	A6317440	Transistor, 2SC1815-Y
Q860	A6000050	Transistor, RN1005
Q901	A678970A	Transistor, 2SC1569,X
Q902	A6734590	Transistor, 2SC752(G)TM-Y
Q911	A678970A	Transistor, 2SC1569,X
Q913	A6734590	Transistor, 2SC752(G)TM-Y
Q914	A6321265	Transistor, 2SC120-Y(TE)
Q921	A678970A	Transistor, 2SC1569,X
Q922	A6734590	Transistor, 2SC752(G)TM-Y
Q923	A6734590	Transistor, 2SC752(G)TM-Y
Q961	23114528	Transistor, 2SC1740S-Q
Q962	A6509154	Transistor, 2SA562TM-Y(T)
Q963	A6317440	Transistor, 2SC1815-Y
Q964	A6534053	Transistor, 2SA1015-Y(TE)
Q965	A6317440	Transistor, 2SC1815-Y
Q966	A6534053	Transistor, 2SA1015-Y(TE)
QA01	23906230	IC, 42P87CS38N-3489
QA02	23906244	IC, CAT24C08P
QB01	23114528	Transistor, 2SC1740S-Q
QB02	23114530	Transistor, 2SA933S-Q
QB03	A6002050	Transistor, RN1205
QB61	A6002040	Transistor, RN1204
QB62	A6002040	Transistor, RN1204
QB63	A6012030	Transistor, RN2203
QB64	23114528	Transistor, 2SC1740S-Q
QB65	23114528	Transistor, 2SC1740S-Q
QB66	A6002040	Transistor, RN1204
QB67	A6734590	Transistor, 2SC752(G)TM-Y
QB90	23904921	IC, JLC1563P
QB91	23904659	IC, UPD74HC32C
QD80	23114530	Transistor, 2SA933S-Q
QG01	B0385643	IC, TA1216AN
QO01	B0385755	IC, TA1229N
QO02	B0383881	IC, TA8772AN
QO03	23114528	Transistor, 2SC1740S-Q
QO04	23114528	Transistor, 2SC1740S-Q

Location No.	Part No.	Description
QR01	B0487584	IC, TC74HC4053AP
QR04	A6534053	Transistor, 2SA1015-Y(TE)
QR05	A6534053	Transistor, 2SA1015-Y(TE)
QR06	A6534053	Transistor, 2SA1015-Y(TE)
QR15	A6534053	Transistor, 2SA1015-Y(TE)
QR17	A6317440	Transistor, 2SC1815-Y
QR18	A6734590	Transistor, 2SC752(G)TM-Y
QR19	A6734590	Transistor, 2SC752(G)TM-Y
QR20	A6317440	Transistor, 2SC1815-Y
QR21	A6317440	Transistor, 2SC1815-Y
QR22	A6317440	Transistor, 2SC1815-Y
QS01	A6342206	Transistor, 2SC2878-A(TE)
QS02	A6342206	Transistor, 2SC2878-A(TE)
QS03	A6010040	Transistor, RN2004
QS04	23114528	Transistor, 2SC1740S-Q
QS05	23114528	Transistor, 2SC1740S-Q
QS801	23114528	Transistor, 2SC1740S-Q
QS802	23114528	Transistor, 2SC1740S-Q
QS803	A6342206	Transistor, 2SC2878-A(TE)
QS804	A6342206	Transistor, 2SC2878-A(TE)
QS805	A6010040	Transistor, RN2004
QT01	23904899	IC, SAA5281ZP/E
QT02	A6317440	Transistor, 2SC1815-Y
QT03	A6317440	Transistor, 2SC1815-Y
QT04	A6534053	Transistor, 2SA1015-Y(TE)
QT05	A6317440	Transistor, 2SC1815-Y
QT06	A6534053	Transistor, 2SA1015-Y(TE)
QV01	B0385650	IC, TA1218N
QV03	A6002030	Transistor, RN1203
QV05	A6002030	Transistor, RN1203
QV10	23114528	Transistor, 2SC1740S-Q
QV13	23114528	Transistor, 2SC1740S-Q
QV40	23114528	Transistor, 2SC1740S-Q
QV41	23114528	Transistor, 2SC1740S-Q
QV42	23114530	Transistor, 2SA933S-Q
QV43	A6534053	Transistor, 2SA1015-Y(TE)
QV44	23114528	Transistor, 2SC1740S-Q
QV45	23114528	Transistor, 2SC1740S-Q
QV46	23114530	Transistor, 2SA933S-Q
QV47	A6534053	Transistor, 2SA1015-Y(TE)
QV48	23114528	Transistor, 2SC1740S-Q
QV50	A6534053	Transistor, 2SA1015-Y(TE)
QV51	23114528	Transistor, 2SC1740S-Q
QV52	A6342206	Transistor, 2SC2878-A(TE)
QW05	A6317440	Transistor, 2SC1815-Y
QW06	A6317440	Transistor, 2SC1815-Y
QW07	A6734590	Transistor, 2SC752(G)TM-Y
QW09	23114528	Transistor, 2SC1740S-Q
QW10	23114530	Transistor, 2SA933S-Q
QW11	23314911	Transistor, 2SB1568A
QW12	23314914	Transistor, 2SD2400A
QW19	A6317440	Transistor, 2SC1815-Y
QW20	A6317440	Transistor, 2SC1815-Y
QY602	23319251	IC, MC1458P1
QY601	23318255	IC, $\mu$ PC1406HA
QY604	A6342206	Transistor, 2SC2878-A(TE)
QY605	23114530	Transistor, 2SA933S-Q
QY606	A6010040	Transistor, RN2004
QZ01	B0410688	IC, TC9090AN
QZ02	23319504	IC, MM1031XS
QZ03	23114528	Transistor, 2SC1740S-Q
QZ04	23114528	Transistor, 2SC1740S-Q
QZ05	23114528	Transistor, 2SC1740S-Q
QZ06	23114528	Transistor, 2SC1740S-Q

Location No.	Part No.	Description
D101	23316411	Diode, 1SS184
D201	23118859	Diode, 1SS133
D215	23118859	Diode, 1SS133
D216	23118859	Diode, 1SS133
D217	23118859	Diode, 1SS133
D218	23118859	Diode, 1SS133
D219	23118859	Diode, 1SS133
D220	23118859	Diode, 1SS133
D221	23316687	Diode, Zener, MTZJ9.1B
D301	23118094	Diode, EU2A
D302	23118094	Diode, EU2A
D303	23118859	Diode, 1SS133
D308	23118822	Diode, ERB12-02
D309	23118822	Diode, ERB12-02
D312	23118859	Diode, 1SS133
D315	23118859	Diode, 1SS133
D332	23316794	Diode, SC570A
D340	23118859	Diode, 1SS133
D341	23316675	Diode, Zener, MTZJ6.2B
D350	23118859	Diode, 1SS133
D351	23118859	Diode, 1SS133
D352	23118859	Diode, 1SS133
D353	23316672	Diode, Zener, MTZJ5.5B
D354	23118859	Diode, 1SS133
D370	23316672	Diode, Zener, MTZJ5.5B
D406	A7978950	Diode, S5295G
D408	23118338	Diode, RU4AM
D427	23316680	Diode, Zener, MTZJ7.5A
D430	23316670	Diode, Zener, MTZJ5.1C
D431	23118859	Diode, 1SS133
D432	23316670	Diode, Zener, MTZJ5.1C
D441	23316726	Diode, Zener, MTZJ15C
D442	A7568200	Diode, 1S1832
D443	23118338	Diode, RU4AM
D444	23118338	Diode, RU4AM
D458	23116774	Diode, Zener, RD6.2E(4)
D459	23118859	Diode, 1SS133
D460	A7568480	Diode, TVR-1G
D461	23316582	Diode, ERC20-06
D463	23118859	Diode, 1SS133
D464	23316718	Diode, Zener, MTZJ12A
D465	23316718	Diode, Zener, MTZJ12A
D467	A7568752	Diode, 1S1887A
D470	23118859	Diode, 1SS133
D471	A7568460	Diode, TVR-1B
D474	23118511	Diode, Zener, RD12ESA B2
D482	23118094	Diode, EU2A
D486	23316742	Diode, Zener, MTZJ24B
D487	23118094	Diode, EU2A
D488	23118859	Diode, 1SS133
D489	23316659	Diode, Zener, MTZJ3.5B
D601	23118859	Diode, 1SS133
D602	23118859	Diode, 1SS133
D603	23118859	Diode, 1SS133
D604	23118859	Diode, 1SS133
D605	23118859	Diode, 1SS133
D606	23118859	Diode, 1SS133
D611	23118859	Diode, 1SS133
D612	23118859	Diode, 1SS133
D613	23118859	Diode, 1SS133
D614	23118859	Diode, 1SS133
D701	23115537	Diode, 1SS131



Location No.	Part No.	Description
D702	23115537	Diode, 1SS131
D703	23115537	Diode, 1SS131
D704	23115537	Diode, 1SS131
D801	23316784	Diode, RBV-1506
D803	23118094	Diode, EU2A
D804	23316315	Diode, Zener, UZ6.8BSB
D805	23118859	Diode, 1SS133
D806	23118094	Diode, EU2A
D808	23118094	Diode, EU2A
D809	A7270200	Diode, Zener, 1Z6.2
D810	23118859	Diode, 1SS133
D811	23118859	Diode, 1SS133
D812	23118451	Diode, RU-4A
D815	23316339	Diode, Zener, UZ15BSB
D816	23118859	Diode, 1SS133
D817	23316365	Diode, UZ30BSB
D820	23118859	Diode, 1SS133
D828	23118859	Diode, 1SS133
D835	23118859	Diode, 1SS133
D837	23316309	Diode, Zener, UZ5.6BSB
D850	23118173	Diode, RBV-408M-LFA
D852	23118094	Diode, EU2A
D853	23118094	Diode, EU2A
D854	23316309	Diode, Zener, UZ5.6BSB
D855	23316339	Diode, Zener, UZ15BSB
D856	23118094	Diode, EU2A
D857	23118859	Diode, 1SS133
D858	23118094	Diode, EU2A
D859	23316315	Diode, Zener, UZ6.8BSB
D860	23118859	Diode, 1SS133
D861	23316744	Diode, Zener, MTZJ24D
D862	23118859	Diode, 1SS133
D863	23118094	Diode, EU2A
D864	23316475	Diode, FMP-G12S
D865	23316475	Diode, FMP-G12S
D867	23118094	Diode, EU2A
D868	23316475	Diode, FMP-G12S
D869	23118859	Diode, 1SS133
D870	23118859	Diode, 1SS133
D871	23118859	Diode, 1SS133
D872	23316675	Diode, Zener, MTZJ6.2B
D873	23316315	Diode, Zener, UZ6.8BSB
D874	23118859	Diode, 1SS133
D875	23316760	Diode, Zener, MTZJ36D
D876	23118859	Diode, 1SS133
D877	23118859	Diode, 1SS133
D883	23316406	Diode, FML-G16S
D885	23316184	Diode, FML-G12S
D891	23316184	Diode, FML-G12S
D896	23316625	Diode, EU2YX
D899	24000658	Varistor, 470V
D901	23118859	Diode, 1SS133
D902	23118859	Diode, 1SS133
D903	23118859	Diode, 1SS133
D904	23118859	Diode, 1SS133
D905	23118859	Diode, 1SS133
D906	23118859	Diode, 1SS133
D911	23118859	Diode, 1SS133
D912	23118859	Diode, 1SS133
D913	23118859	Diode, 1SS133
D914	23118859	Diode, 1SS133
D915	23118859	Diode, 1SS133
D921	23118859	Diode, 1SS133
D922	23118859	Diode, 1SS133

Location No.	Part No.	Description
D923	23118859	Diode, 1SS133
D924	23118859	Diode, 1SS133
D925	23118859	Diode, 1SS133
D926	23118859	Diode, 1SS133
D927	23118859	Diode, 1SS133
D945	23118859	Diode, 1SS133
D946	23118859	Diode, 1SS133
D961	23118859	Diode, 1SS133
D962	23118859	Diode, 1SS133
D964	23118859	Diode, 1SS133
D7701	23118859	Diode, 1SS133
D7702	23115532	Diode, ER812-01
D7705	23118859	Diode, 1SS133
D7706	23118859	Diode, 1SS133
D7707	23118859	Diode, 1SS133
D7708	23118859	Diode, 1SS133
D7709	23316675	Diode, Zener, MTZJ6.2B
D7710	23316716	Diode, Zener, MTZJ11B
D7711	23316716	Diode, Zener, MTZJ11B
D7712	23118859	Diode, 1SS133
D7713	23118859	Diode, 1SS133
D7717	23316675	Diode, Zener, MTZJ6.2B
D7718	23316675	Diode, Zener, MTZJ6.2B
D7719	23316675	Diode, Zener, MTZJ6.2B
D7720	23316675	Diode, Zener, MTZJ6.2B
D7721	23316675	Diode, Zener, MTZJ6.2B
D7722	23316675	Diode, Zener, MTZJ6.2B
D7801	23118859	Diode, 1SS133
D7802	23118859	Diode, 1SS133
D7803	23118859	Diode, 1SS133
D7804	23118859	Diode, 1SS133
D7805	23118859	Diode, 1SS133
DA42	23316675	Diode, Zener, MTZJ6.2B
DA69	23316675	Diode, Zener, MTZJ6.2B
DB01	23358493	LED, SPS4M/VWFLMN
DB03	23358522	LED, SIR-665B3F
DD80	23118859	Diode, 1SS133
DR01	23316817	Diode, 1SS120-7
DR31	23118859	Diode, 1SS133
DV01	23316686	Diode, Zener, MTZJ9.1A
DV02	23316686	Diode, Zener, MTZJ9.1A
DV03	23316686	Diode, Zener, MTZJ9.1A
DV04	23316686	Diode, Zener, MTZJ9.1A
DV05	23316686	Diode, Zener, MTZJ9.1A
DV06	23118859	Diode, 1SS133
DW04	23118859	Diode, 1SS133
DW05	23118859	Diode, 1SS133
DW06	A7568475	Diode, TVR-2D
DW07	A7568475	Diode, TVR-2D
DW20	23118859	Diode, 1SS133
DW21	23118859	Diode, 1SS133
DY601	23118859	Diode, 1SS133
DY602	23118859	Diode, 1SS133
DZ01	23118622	Diode, Zener, RD10ESA82
<b>MISCELLANEOUS</b>		
B202	23470270	Holder, Back Terminal
△F470	23144873	Fuse, 1.0A
F470A	23165431	Holder, Fuse
F470B	23165431	Holder, Fuse
△F801	23144458	Fuse, 5.0A
F801A	23165433	Holder, Fuse
△F802	23144870	Fuse, 2.0A, 250V
F802A	23165431	Holder, Fuse

Location No.	Part No.	Description
F802B	23165431	Holder, Fuse
△ F803	23144870	Fuse, 2.0A, 250V
F803A	23165431	Holder, Fuse
F803B	23165431	Holder, Fuse
△ F804	23144870	Fuse, 2.0A, 250V
F804A	23165431	Holder, Fuse
F804B	23165431	Holder, Fuse
△ F805	23144867	Fuse, 4.0A
F805A	23165431	Holder, Fuse
F805B	23165431	Holder, Fuse
H002	23148282	Module, MVCS45, Multi IF MPX APRO
H003	23123919	Divider, Antenna, DAE123B
JP202	23238714	Coil, Peaking, TRF4100AJ
KB01	23904948	Remote Sensor, RPM-676CBB-S
P661	23365444	Jack, Earphone
△ P801	23372053	Power Cord (AV-48PRO)
△ P801	23372055	Power Cord (AV-48PROX)
△ S801	23145434	Switch, Power, 2C2P
SA01	23145226	Switch, Push, 1C1P
SA02	23145226	Switch, Push, 1C1P
SA03	23145226	Switch, Push, 1C1P
SA04	23145226	Switch, Push, 1C1P
SA06	23145226	Switch, Push, 1C1P
SA07	23145226	Switch, Push, 1C1P
△ SR80	23148584	Relay, DC12V
△ SR81	23148584	Relay, DC12V
△ V801A	23902888	Socket, CRT, 9P
△ V902A	23902888	Socket, CRT, 9P
△ V903A	23902888	Socket, CRT, 9P
W661	23151232	Speaker, SPK-1235, 160x160mm, 8 ohm
W662	23151232	Speaker, SPK-1235, 160x160mm, 8 ohm
X401	23153721	Ceramic Resonator, 503kHz, TCR1023
X501	23153961	Crystal, 3.58MHz
X503	23153979	Crystal, 4.43MHz
XA01	23153325	Ceramic Resonator, 8.00M, TCR1056
XQ01	23153969	Crystal, 4MHz
XT01	23153472	Crystal, 27M
△ Z410	23110841	Focus Pack, TPA6030
Z410A	23368609	Focus Cable
△ Z450	24082877	CR Block, TPA5007
Z702	23103800	Filter, TEM2026D
Z703	23103800	Filter, TEM2026D
Z704	23103800	Filter, TEM2026D
Z705	23103800	Filter, TEM2026D
Z706	23103800	Filter, TEM2026D
Z707	23103800	Filter, TEM2026D
Z711	23103800	Filter, TEM2026D
Z712	23103800	Filter, TEM2026D
Z801	23904998	IC, HIC1016
Z889	23144543	Protector, PRF50005491, 125V, 5A
Z890	23144543	Protector, PRF50005491, 125V, 5A
ZP405	23144538	Protector, 125V, 1.6A
ZV01	23107519	Ceramic Video Trap, 4.43MHz, TCF1066
ZY01	23148264	Module, Multi PIP

Location No.	Part No.	Description
<b>PICTURE TUBE</b>		
△ V901R	23795718	Projection Tube Assy (R)
E935	23710134	Screw, PP4x0.7x8 SBZ
△ V902G	23795719	Projection Tube Assy (G)
E943	23710134	Screw, PP4x0.7x8 SBZ
△ V903B	23795720	Projection Tube Assy (B)
E956	23710134	Screw, PP4x0.7x8 SBZ
<b>TUNER</b>		
H001	23321259	Tuner, ECA12LX2
HY01	23321292	Tuner, EC922L2
<b>PACKING</b>		
△ Y101A	23563233	INST BOOK
A122	23845485	Safety Band
K902	23306252	Remote Hand Unit (AV-48PROX) RM-C286-1
K902	23306249	Remote Hand Unit (AV-48PRO) RM-C285-1

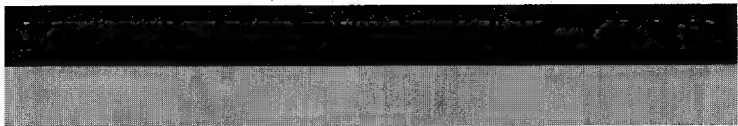




# SPECIFICATIONS

<b>Input Power Rating:</b>	210 W, AC 110 ~ 245 V, 50/60 Hz				
<b>Aerial Input Impedance:</b>	75 ohm unbalanced type for VHF, UHF and CATV				
<b>Television System and Channels:</b>	<b>System</b>	<b>Channel</b>	<b>VHF</b>	<b>UHF</b>	<b>CATV</b>
	PAL B/G	C.C.I.R	2 ~ 12	21 ~ 69	X ~ Z + 2, S1 ~ S41
	PAL I	UK	-	21 ~ 69	-
	PAL D/K	CHINA	1 ~ 12	13 ~ 57	Z-1 ~ Z-35
	SECAM B/G	C.C.I.R	2 ~ 12	21 ~ 69	X ~ Z + 2, S1 ~ S41
	SECAM D/K	OIRT	1 ~ 12	21 ~ 69	-
	NTSC M US	US	2 ~ 13	14 ~ 79	A-6 ~ A-1, A ~ W, AA ~ BBB
	NTSC M JAPAN	JAPAN	1 ~ 12	13 ~ 62	M1 ~ M10, S1 ~ S16
	Special RF Signal:	4.43NTSC		Sound system	5.5/6.0/6.5MHz
	Special RF Signal:	PAL 60Hz		Sound system	5.5/6.0/6.5MHz
<b>Intermediate Frequencies:</b>	Picture I-F carrier frequency				38.0 MHz
	Sound I-F carrier frequency				33.5 MHz (4.5 MHz M)
					32.5 MHz (5.5 MHz B/G)
					32.0 MHz (6.0 MHz I)
					31.5 MHz (6.5 MHz D/K)
<b>Colour System:</b>	PAL / SECAM / 4.43 NTSC / 3.58 NTSC				
<b>Screen Size:</b>	Type 48				
<b>Sound Output:</b>	14W + 14W				
<b>Speakers:</b>	160 mm x 160 mm, 2 pcs				
<b>Aux. Terminals:</b>	Headphone Jack, S-VIDEO socket, VIDEO/AUDIO input socket, MONITOR output socket				
<b>Dimensions:</b>	Height				1254 mm
	Width				1046 mm
	Depth				499 mm
<b>Mass:</b>	85 kg				
<b>Features:</b>	Projection TV, Picture in Picture, NICAM and German stereo, ON/OFF-timer, No signal off, Blue back screen, TV Games, MULTI Language OSD, TELETEXT (AV-48PRO only)				

Specifications are subject to change without notice.



# JVC

VICTOR COMPANY OF JAPAN, LIMITED  
TELEVISION RECEIVER DIVISION 1106 Heta, Iwai-city, Ibaraki-prefecture, 306-06, Japan



Printed in Japan  
VP 9711  
MS/MH

Location No.	Part No.	Description
C837	24567334	PF, 0.33 $\mu$ F
C838	24763221	EL, 220 $\mu$ F, $\pm 20\%$ , 16V
C840	24214471	CD, 470pF, $\pm 10\%$ , 500V
C841	24676220	EL, 22 $\mu$ F, $\pm 20\%$ , 100V
C842	24567474	PF, 0.47 $\mu$ F
C843	24567474	PF, 0.47 $\mu$ F
C844	24567334	PF, 0.33 $\mu$ F
C845	24665471	EL, 470 $\mu$ F, $\pm 20\%$ , 10V
C846	24567104	PF, 0.1 $\mu$ F
C847	24669470	EL, 47 $\mu$ F, $\pm 20\%$ , 50V
C850	24092281	CD, 4700pF, $\pm 20\%$ , AC250V
C851	24092281	CD, 4700pF, $\pm 20\%$ , AC250V
C852	24092281	CD, 4700pF, $\pm 20\%$ , AC250V
C853	24092281	CD, 4700pF, $\pm 20\%$ , AC250V
C854	24086936	EL, 270 $\mu$ F, $\pm 20\%$ , 450V
C856	24092341	CD, 470pF, $\pm 10\%$ , 2kV
C856	24095913	PF, 1600pF, $\pm 3\%$ , 1600V
C857	24617819	EL, 47 $\mu$ F, $\pm 20\%$ , 50V
C858	24214471	CD, 470pF, $\pm 10\%$ , 500V
C859	24214471	CD, 470pF, $\pm 10\%$ , 500V
C860	24676470	EL, 47 $\mu$ F, $\pm 20\%$ , 100V
C861	24676220	EL, 22 $\mu$ F, $\pm 20\%$ , 100V
C862	24590152	PF, 1500pF
△ C863	24092565	CD, 470pF, $\pm 10\%$ , AC250V
△ C864	24092565	CD, 470pF, $\pm 10\%$ , AC250V
C865	24214331	CD, 330pF, $\pm 10\%$ , 500V
C866	24214331	CD, 330pF, $\pm 10\%$ , 500V
C867	24214471	CD, 470pF, $\pm 10\%$ , 500V
C868	24214471	CD, 470pF, $\pm 10\%$ , 500V
C869	24689470	EL, 47 $\mu$ F, $\pm 20\%$ , 50V
C870	24795332	EL, 3300 $\mu$ F, 25V
C871	24795332	EL, 3300 $\mu$ F, 25V
C872	24214471	CD, 470pF, $\pm 10\%$ , 500V
C873	24797222	EL, 2200 $\mu$ F, $\pm 20\%$ , 50V
C874	24214471	CD, 470pF, $\pm 10\%$ , 500V
C875	24567563	PF, 0.056 $\mu$ F
C876	24797100	EL, 10 $\mu$ F, $\pm 20\%$ , 50V
C877	24797100	EL, 10 $\mu$ F, $\pm 20\%$ , 50V
C878	24567104	PF, 0.1 $\mu$ F
C879	24797100	EL, 10 $\mu$ F, $\pm 20\%$ , 50V
C880	24677220	EL, 22 $\mu$ F, $\pm 20\%$ , 160V
C884	24086049	EL, 330 $\mu$ F, $\pm 20\%$ , 160V
C885	24214471	CD, 470pF, $\pm 10\%$ , 500V
C887	24214471	CD, 470pF, $\pm 10\%$ , 500V
C889	24797222	EL, 2200 $\mu$ F, $\pm 20\%$ , 50V
C890	24666101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C891	24666101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C892	24795472	EL, 100 $\mu$ F, $\pm 20\%$ , 25V
C893	24092338	CD, 270pF, $\pm 10\%$ , 2kV
C894	24669229	EL, 2.2 $\mu$ F, $\pm 20\%$ , 50V
C895	24676470	EL, 47 $\mu$ F, $\pm 20\%$ , 100V
C897	24795472	EL, 4700 $\mu$ F, $\pm 20\%$ , 25V
C898	24567474	PF, 0.47 $\mu$ F
C899	24214471	CD, 470pF, $\pm 10\%$ , 500V
C901	24211102	CD, 1000pF, $\pm 10\%$ , 2kV
C902	24794101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C903	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
C904	24436471	CD, 470pF
C905	24214102	CD, 1000pF, $\pm 10\%$ , 500V
C911	24211102	CD, 1000pF, $\pm 10\%$ , 2kV
C912	24794101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C913	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
C914	24436471	CD, 470pF
C915	24679330	EL, 33 $\mu$ F, $\pm 20\%$ , 250V

Location No.	Part No.	Description
C916	24794102	EL, 1000 $\mu$ F, $\pm 20\%$ , 16V
C921	24211102	CD, 1000pF, $\pm 10\%$ , 2kV
C922	24794101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C923	24436471	CD, 470pF
C924	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
C941	24797478	EL, 0.47 $\mu$ F, $\pm 20\%$ , 50V
C943	24794471	EL, 470 $\mu$ F, $\pm 20\%$ , 16V
C944	24203100	EL, 10 $\mu$ F, $\pm 20\%$ , 16V
C961	24794101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C962	24203100	EL, 10 $\mu$ F, $\pm 20\%$ , 16V
C963	24591104	PF, 0.1 $\mu$ F
C964	24591104	PF, 0.1 $\mu$ F
C7701	24761221	EL, 220 $\mu$ F, $\pm 20\%$ , 6.3V
C7721	24212102	CD, 1000pF, $\pm 10\%$
C7722	24436101	CD, 100pF
C7724	24795101	EL, 100 $\mu$ F, $\pm 20\%$ , 25V
C7725	24795101	EL, 100 $\mu$ F, $\pm 20\%$ , 25V
C7726	24212102	CD, 1000pF, $\pm 10\%$
C7727	24436101	CD, 100pF
C7729	24212102	CD, 1000pF, $\pm 10\%$
C7730	24436101	CD, 100pF
C7732	24212102	CD, 1000pF, $\pm 10\%$
C7733	24436101	CD, 100pF
C7735	24795101	EL, 100 $\mu$ F, $\pm 20\%$ , 25V
C7736	24797101	EL, 100 $\mu$ F, $\pm 20\%$ , 50V
C7737	24212102	CD, 1000pF, $\pm 10\%$
C7738	24436101	CD, 100pF
C7740	24212102	CD, 1000pF, $\pm 10\%$
C7741	24436101	CD, 100pF
C7747	24794101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C7748	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
C7749	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
C7750	24764101	EL, 100 $\mu$ F, $\pm 20\%$ , 25V
C7751	24794101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C7752	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
C7753	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
C7754	24764101	EL, 100 $\mu$ F, $\pm 20\%$ , 25V
C7755	24794101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
C7756	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
C7757	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
C7758	24764101	EL, 100 $\mu$ F, $\pm 20\%$ , 25V
C7760	24795470	EL, 47 $\mu$ F, $\pm 20\%$ , 25V
C7781	24669100	EL, 10 $\mu$ F, $\pm 20\%$ , 50V
C7782	24669100	EL, 10 $\mu$ F, $\pm 20\%$ , 50V
C7783	24795470	EL, 47 $\mu$ F, $\pm 20\%$ , 25V
C7784	24436331	CD, 330pF
C7765	24797479	EL, 4.7 $\mu$ F, $\pm 20\%$ , 50V
C7786	24797479	EL, 4.7 $\mu$ F, $\pm 20\%$ , 50V
C7767	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
C7768	24567104	PF, 0.1 $\mu$ F
C7769	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
C7770	24797470	EL, 47 $\mu$ F, $\pm 20\%$ , 50V
C7771	24567103	PF, 0.01 $\mu$ F
C7773	24766471	EL, 470 $\mu$ F, $\pm 20\%$ , 50V
C7774	24436331	CD, 330pF
C7776	24669339	EL, 3.3 $\mu$ F, $\pm 20\%$ , 50V
CA13	24212101	CD, 100pF, $\pm 10\%$
CA22	24212101	CD, 100pF, $\pm 10\%$
CA23	24212101	CD, 100pF, $\pm 10\%$
CA24	24212101	CD, 100pF, $\pm 10\%$
CA25	24474101	CD, 100pF, $\pm 10\%$
CA33	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CA36	24212101	CD, 100pF, $\pm 10\%$
CA37	24212101	CD, 100pF, $\pm 10\%$

Location No.	Part No.	Description
CA38	24212101	CD, 100pF, $\pm 10\%$
CA42	24794100	EL, 10pF, $\pm 20\%$ , 16V
CA43	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CA44	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CA68	24794100	EL, 10pF, $\pm 20\%$ , 16V
CA69	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CB01	24794470	EL, 47pF, $\pm 20\%$ , 16V
CB40	24212101	CD, 100pF, $\pm 10\%$
CB41	24212101	CD, 100pF, $\pm 10\%$
CB61	24797010	EL, 1pF, $\pm 20\%$ , 50V
CB62	24591683	PF, 0.068pF
CB63	24591333	PF, 0.033pF
CB80	24203100	EL, 10pF, $\pm 20\%$ , 16V
CG01	24591224	PF, 0.22pF
CG02	24591104	PF, 0.1pF
CG03	24591104	PF, 0.1pF
CG04	24206010	EL, 1pF, 50V
CG05	24797220	EL, 22pF, $\pm 20\%$ , 50V
CG07	24206010	EL, 1pF, 50V
CG08	24206010	EL, 1pF, 50V
CG09	24206010	EL, 1pF, 50V
CG12	24591273	PF, 0.027pF
CG13	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CG14	24203101	EL, 100pF, $\pm 20\%$ , 16V
CG15	24591822	PF, 8200pF
CG16	24206010	EL, 1pF, 50V
CG17	24591273	PF, 0.027pF
CG18	24591822	PF, 8200pF
CG20	24203100	EL, 10pF, $\pm 20\%$ , 16V
CG24	24474102	CD, 1000pF, $\pm 10\%$
CG25	24206229	EL, 2.2pF, 50V
CG26	24206229	EL, 2.2pF, 50V
CG30	24203100	EL, 10pF, $\pm 20\%$ , 16V
CQ01	24212102	CD, 1000pF, $\pm 10\%$
CQ02	24353820	CD, 82pF
CQ03	24212102	CD, 1000pF, $\pm 10\%$
CQ04	24794100	EL, 10pF, $\pm 20\%$ , 16V
CQ05	24590563	PF, 0.056pF
CQ07	24590203	PF, 0.02pF
CQ08	24590683	PF, 0.068pF
CQ09	24797229	EL, 2.2pF, $\pm 20\%$ , 50V
CQ10	24590223	PF, 0.022pF
CQ11	24797229	EL, 2.2pF, $\pm 20\%$ , 50V
CQ12	24436820	CD, 82pF
CQ12A	24436090	CD, 9pF, $\pm 0.25$ pF
CQ13	24797010	EL, 1pF, $\pm 20\%$ , 50V
CQ14	24797010	EL, 1pF, $\pm 20\%$ , 50V
CQ15	24794101	EL, 10pF, $\pm 20\%$ , 16V
CQ16	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CQ17	24353150	CD, 15pF
CQ18	24436820	CD, 82pF
CQ18A	24436090	CD, 9pF, $\pm 0.25$ pF
CQ19	24590103	PF, 0.01pF
CQ20	24567104	PF, 0.1pF
CQ21	24794470	EL, 47pF, $\pm 20\%$ , 16V
CQ22	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CQ23	24567104	PF, 0.1pF
CQ24	24567104	PF, 0.1pF
CQ25	24797100	EL, 10pF, $\pm 20\%$ , 50V
CQ26	24567104	PF, 0.1pF
CQ27	24567104	PF, 0.1pF
CQ28	24797478	EL, 0.47pF, $\pm 20\%$ , 50V
CQ29	24794101	EL, 100pF, $\pm 20\%$ , 16V
CQ30	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%

Location No.	Part No.	Description
CQ31	24797478	EL, 0.47pF, $\pm 20\%$ , 50V
CQ32	24590103	PF, 0.01pF
CQ33	24567104	PF, 0.1pF
CQ34	24567104	PF, 0.1pF
CQ35	24206478	EL, 0.47pF, 50V
CQ36	24206478	EL, 0.47pF, 50V
CQ37	24797010	EL, 1pF, $\pm 20\%$ , 50V
CQ38	24797010	EL, 1pF, $\pm 20\%$ , 50V
CQ39	24797010	EL, 1pF, $\pm 20\%$ , 50V
CQ40	24436820	CD, 82pF
CQ40A	24436090	CD, 9pF, $\pm 0.25$ pF
CR01	24567104	PF, 0.1pF
CR02	24567104	PF, 0.1pF
CR03	24567104	PF, 0.1pF
CR05	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CR06	24666100	EL, 10pF, $\pm 20\%$ , 16V
CR12	24206108	EL, 0.1pF, 50V (U901)
CR12	24666100	EL, 10pF, $\pm 20\%$ , 16V (UM01)
CR13	24206108	EL, 0.1pF, 50V
CR14	24206108	EL, 0.1pF, 50V
CR15	24617024	EL, 470pF, $\pm 20\%$ , 16V
CS01	24206010	EL, 1pF, 50V
CS02	24206010	EL, 1pF, 50V
CS03	24085988	EL, 1pF, $\pm 20\%$ , 50V, NP
CS05	24206010	EL, 1pF, 50V
CS06	24206010	EL, 1pF, 50V
CS07	24206010	EL, 1pF, 50V
CS08	24206010	EL, 1pF, 50V
CS09	24206010	EL, 1pF, 50V
CS10	24206010	EL, 1pF, 50V
CS11	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CS21	24212152	CD, 1500pF, $\pm 10\%$
CS22	24212152	CD, 1500pF, $\pm 10\%$
CS23	24206478	EL, 0.47pF, 50V
CS22	24203100	EL, 10pF, $\pm 20\%$ , 16V
CS33	24763101	EL, 100pF, $\pm 20\%$ , 16V
CS601	24794100	EL, 10pF, $\pm 20\%$ , 16V
CS602	24794100	EL, 10pF, $\pm 20\%$ , 16V
CS605	24797478	EL, 0.47pF, $\pm 20\%$ , 50V
CT01	24590104	PF, 0.1pF
CT02	24353100	CD, 10pF, $\pm 0.25$ pF
CT03	24353150	CD, 15pF
CT04	24212102	CD, 1000pF, $\pm 10\%$
CT05	24590104	PF, 0.1pF
CT06	24590104	PF, 0.1pF
CT07	24085944	EL, 2.2pF, $\pm 20\%$ , 50V, NP
CT08	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CT09	24794101	EL, 100pF, $\pm 20\%$ , 16V
CT10	24436220	CD, 22pF
CT11	24794101	EL, 10pF, $\pm 20\%$ , 16V
CT12	24590104	PF, 0.1pF
CT13	24794100	EL, 10pF, $\pm 20\%$ , 16V
CT14	24794100	EL, 10pF, $\pm 20\%$ , 16V
CT15	24436101	CD, 100pF
CT16	24436220	CD, 22pF
CT17	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CT17	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CV02	24203100	EL, 10pF, $\pm 20\%$ , 16V
CV03	24203100	EL, 10pF, $\pm 20\%$ , 16V
CV04	24203100	EL, 10pF, $\pm 20\%$ , 16V
CV05	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CV06	24203100	EL, 10pF, $\pm 20\%$ , 16V
CV07	24763471	EL, 470pF, $\pm 20\%$ , 16V
CV08	24763471	EL, 470pF, $\pm 20\%$ , 16V



Location No.	Part No.	Description
CV09	24203100	EL, 10 $\mu$ F, $\pm 20\%$ , 16V
CV10	24203100	EL, 10 $\mu$ F, $\pm 20\%$ , 16V
CV12	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CV13	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CV27	24763471	EL, 470 $\mu$ F, $\pm 20\%$ , 16V
CV29	24763101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
CV30	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CV31	24474102	CD, 1000 $\mu$ F, $\pm 10\%$
CV40	24763101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
CV41	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CV42	24085929	EL, 33 $\mu$ F, $\pm 20\%$ , 16V, NP
CV43	24436820	CD, 82pF
CV43A	24436090	CD, 9pF, $\pm 0.25$ pF
CV44	24436101	CD, 100pF
CV46	24763101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V (UV01)
CV46	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%, (M0372)
CV47	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CV48	24203330	EL, 33 $\mu$ F, $\pm 20\%$ , 16V (UV01)
CV48	24478103	CD, 0.01 $\mu$ F, $\pm 30\%$ , 16V (M0372)
CV53	24474102	CD, 1000 $\mu$ F, $\pm 10\%$
CV54	24474820	CD, 82pF, $\pm 10\%$
CW04	24581822	PF, 8200pF
CW05	24212103	CD, 0.01 $\mu$ F, $\pm 10\%$
CW07	24666470	EL, 47 $\mu$ F, $\pm 20\%$ , 16V
CW12	24666470	EL, 47 $\mu$ F, $\pm 20\%$ , 16V
CW13	24790100	EL, 10 $\mu$ F, $\pm 20\%$ , 160V
CW14	24438101	CD, 100pF
CW15	24214472	CD, 4700 $\mu$ F, $\pm 10\%$ , 500V
CW16	24436101	CD, 100pF
CW17	24214472	CD, 4700 $\mu$ F, $\pm 10\%$ , 500V
CW18	24790470	EL, 47 $\mu$ F, $\pm 20\%$ , 160V
CW19	24435560	CD, 56pF, 500V
CW20	24790100	EL, 10 $\mu$ F, $\pm 20\%$ , 160V
CW21	24790470	EL, 47 $\mu$ F, $\pm 20\%$ , 160V
CW22	24435561	CD, 56pF
CW26	24212102	CD, 1000 $\mu$ F, $\pm 10\%$
CY01	24763221	EL, 220 $\mu$ F, $\pm 20\%$ , 16V
CY601	24794101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
CY602	24797479	EL, 4.7 $\mu$ F, $\pm 20\%$ , 50V
CY603	24797479	EL, 4.7 $\mu$ F, $\pm 20\%$ , 50V
CY604	24794100	EL, 10 $\mu$ F, $\pm 20\%$ , 16V
CY605	24794100	EL, 10 $\mu$ F, $\pm 20\%$ , 16V
CY606	24794100	EL, 10 $\mu$ F, $\pm 20\%$ , 16V
CY607	24797229	EL, 2.2 $\mu$ F, $\pm 20\%$ , 50V
CY608	24794101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V
CY609	24797229	EL, 2.2 $\mu$ F, $\pm 20\%$ , 50V
CZ07	24206229	EL, 2.2 $\mu$ F, 50V
CZ08	24203100	EL, 10 $\mu$ F, $\pm 20\%$ , 16V
CZ09	24436220	CD, 22pF
CZ10	24473180	CD, 18pF
CZ11	24473100	CD, 10pF
CZ12	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CZ13	24092398	CD, 0.1 $\mu$ F, $\pm 80\%$ , -20%
CZ14	24617816	EL, 10 $\mu$ F, $\pm 20\%$ , 50V
CZ15	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CZ16	24206478	EL, 0.47 $\mu$ F, 50V
CZ17	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CZ19	24436181	CD, 180pF
CZ20	24567103	PF, 0.01 $\mu$ F
CZ21	24436390	CD, 39pF
CZ22	24617816	EL, 10 $\mu$ F, $\pm 20\%$ , 50V
CZ23	24092398	CD, 0.1 $\mu$ F, $\pm 80\%$ , -20%
CZ24	24092398	CD, 0.1 $\mu$ F, $\pm 80\%$ , -20%
CZ25	24203101	EL, 100 $\mu$ F, $\pm 20\%$ , 16V

Location No.	Part No.	Description
CZ26	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CZ28	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CZ29	24092398	CD, 0.1 $\mu$ F, $\pm 80\%$ , -20%
CZ30	24617816	EL, 10 $\mu$ F, $\pm 20\%$ , 50V
CZ32	24436120	CD, 12pF
CZ33	24436120	CD, 12pF
CZ34	24473120	CD, 12pF
CZ35	24473120	CD, 12pF
CZ36	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CZ37	24092398	CD, 0.1 $\mu$ F, $\pm 80\%$ , -20%
CZ38	24092398	CD, 0.1 $\mu$ F, $\pm 80\%$ , -20%
CZ43	24232103	CD, 0.01 $\mu$ F, $\pm 80\%$ , -20%
CZ45	24436180	CD, 18pF
<b>RESISTORS</b>		
R101	24382153	OMF, 15k ohm, 1W
R201	24366821	CF, 820 ohm
R202	24366102	CF, 1k ohm
R204	24366104	CF, 100k ohm
R205	24366101	CF, 100 ohm
R206	24366102	CF, 1k ohm
R207	24366101	CF, 100 ohm
R208	24366101	CF, 100 ohm
R209	24366101	CF, 100 ohm
R212	24366472	CF, 4700 ohm
R213	24366122	CF, 1200 ohm
R214	24366222	CF, 2200 ohm
R215	24366272	CF, 2700 ohm
R216	24366103	CF, 10k ohm
R217	24366102	CF, 1k ohm
R218	24367103	CF, 10k ohm, $\pm 2\%$
R220	24366272	CF, 2700 ohm
R221	24366102	CF, 1k ohm
R223	24366102	CF, 1k ohm
R227	24367912	CF, 9100 ohm, $\pm 2\%$
R230	24366562	CF, 5600 ohm
R301	24366102	CF, 1k ohm
R303	24321129	MF, 1.2 ohm, 1/2W
R304	24367223	CF, 22k ohm, $\pm 2\%$
R305	24322828	OMF, 0.82 ohm, 1W
R306	24367563	CF, 56k ohm, $\pm 2\%$
R307	24367224	CF, 220k ohm
R308	24382391	OMF, 390 ohm, 1W
R311	24366392	CF, 3900 ohm
R312	24366153	CF, 15k ohm
R313	24366104	CF, 100k ohm (M0392)
R313	24367153	CF, 15k ohm $\pm 20\%$ (U401)
R314	24366105	CF, 1M ohm
R315	24366824	CF, 820k ohm
R316	24366154	CF, 150k ohm
R318	24366471	CF, 470 ohm
R319	24366471	CF, 470 ohm
R320	24366101	CF, 100 ohm
R327	24000187	FR, 3.3 ohm, 1W
R328	24366104	CF, 100k ohm
R329	24366203	CF, 20k ohm
R329	24366203	CF, 20k ohm
R330	24366102	CF, 1k ohm
R334	24366102	CF, 1k ohm
R336	24383271	OMF, 270 ohm, 2W
R341	24366682	CF, 6800 ohm
R343	24366153	CF, 15k ohm
R346	24366102	CF, 1k ohm
R347	24366184	CF, 180k ohm

Location No.	Part No.	Description
R350	24366331	CF, 330 ohm
R351	24366823	CF, 82k ohm
R352	24366104	CF, 100k ohm
R353	24366470	CF, 47 ohm
R354	24366562	CF, 5600 ohm
R370	24321159	MF, 1.5 ohm, 1/2W
R371	24366562	CF, 5600 ohm
R372	24366392	CF, 3900 ohm
R373	24366182	CF, 1800 ohm
R374	24366473	CF, 47k ohm
R375	24366102	CF, 1k ohm
R389	24366222	CF, 2200 ohm
R390	24366682	CF, 6800 ohm
R391	24366163	CF, 16k ohm
R392	24366822	CF, 8200 ohm
R401	24366391	CF, 390 ohm
R402	24366103	CF, 10k ohm
R403	24366302	CF, 3k ohm
R404	24382682	OMF, 6800 ohm, 1W
R405	24382682	OMF, 6800 ohm, 1W
R406	24382682	OMF, 6800 ohm, 1W
R407	24366103	CF, 10k ohm
R409	24321209	MF, 2 ohm, 1/2W
R410	24366331	CF, 330 ohm
R411	24366471	CF, 470 ohm
R413	24366274	CF, 270k ohm
R415	24553272	OMF, 2700 ohm, 1W
R416	24510822	Cement, 6200 ohm, 5W
R417	24366471	CF, 470 ohm
R425	24552331	OMF, 330 ohm, 1/2W
R426	24366821	CF, 820 ohm
R427	24366392	CF, 3900 ohm
R428	24366561	CF, 560 ohm
R429	24552560	OMF, 56 ohm, 1/2W
R431	24382100	OMF, 10 ohm, 1W
R432	24532560	FR, 56 ohm, 1W
R434	24366102	CF, 1k ohm
R435	24366333	CF, 33k ohm
R436	24327224	MF, 220k ohm, $\pm 1\%$ , 1/4W
R438	24381102	OMF, 1k ohm, 1/2W
R439	24366472	CF, 4700 ohm
R441	24532102	FR, 1k ohm, 1W
R442	24382513	OMF, 51k ohm, 1W
R443	24310109	MF, 1.0 ohm, 1/2W
R444	24338398	MF, 0.39 ohm, 1W
R447	24382473	OMF, 47k ohm, 1W
R448	24338828	MF, 0.82 ohm, 1W
R450	24066879	VR, 1k ohm, 0.3W
R451	24367223	CF, 22k ohm, $\pm 2\%$

Location No.	Part No.	Description
R452	24367223	CF, 22k ohm, $\pm 2\%$
R453	24367223	CF, 22k ohm, $\pm 2\%$
R454	24366223	CF, 22k ohm
R455	24367333	CF, 33k ohm, $\pm 2\%$
R458	24366823	CF, 82k ohm
R459	24367273	CF, 27k ohm, $\pm 2\%$
R460	24552332	OMF, 3300 ohm, 1/4W
R461	24003924	MF, 3300 ohm, 1/4W
R462	24367103	CF, 10k ohm, $\pm 2\%$
R463	24339479	MF, 4.7 ohm, 2W
R464	24366273	CF, 27k ohm
R465	24366114	CF, 110k ohm
R466	24366102	CF, 1k ohm
R467	24366102	CF, 1k ohm
R468	24366333	CF, 33k ohm
R469	24000465	FR, 9.1 ohm, 1W
R470	24338568	MF, 0.56 ohm, 1W
R471	24381301	OMF, 300 ohm, 1/2W
R472	24552270	OMF, 27 ohm, 1/2W
R478	24376333	CF, 33k ohm, 1/2W
R479	24381750	OMF, 75 ohm, 1/2W
R480	24552272	OMF, 2700 ohm, 1/2W
R481	24366393	CF, 39k ohm
R482	24366103	CF, 10k ohm
R483	24366154	CF, 150k ohm
R484	24366473	CF, 47k ohm
R486	24382103	OMF, 10k ohm, 1W
R487	24366472	CF, 4700 ohm
R488	24366474	CF, 470k ohm
R489	24366332	CF, 3300 ohm
R490	24366332	CF, 3300 ohm
R491	24366912	CF, 9100 ohm
R492	24366102	CF, 1k ohm
R493	24366682	CF, 6800 ohm
R494	24366183	CF, 18k ohm
R501	24366223	CF, 22k ohm
R502	24366101	CF, 100 ohm
R503	24366101	CF, 100 ohm
R504	24366101	CF, 100 ohm
R505	24366102	CF, 1k ohm
R506	24366103	CF, 10k ohm
R508	24366102	CF, 1k ohm
R509	24366102	CF, 1k ohm
R510	24366102	CF, 1k ohm
R511	24366101	CF, 100 ohm
R512	24366101	CF, 100 ohm
R520	24366103	CF, 10k ohm
R521	24366223	CF, 22k ohm
R522	24366473	CF, 47k ohm
R601	24366562	CF, 5600 ohm
R602	24366562	CF, 5600 ohm
R603	24366222	CF, 2200 ohm
R604	24366222	CF, 2200 ohm
R607	24366100	CF, 10 ohm
R608	24366100	CF, 10 ohm
R609	24366229	CF, 2.2 ohm
R610	24366229	CF, 2.2 ohm
R611	24366223	CF, 22k ohm
R612	24366223	CF, 22k ohm
R680	24366473	CF, 47k ohm
R681	24366103	CF, 10k ohm
R683	24366223	CF, 22k ohm

Location No.	Part No.	Description
R684	24366223	CF, 22k ohm
R687	24366103	CF, 10k ohm
R688	24366103	CF, 10k ohm
R688	24552391	OMF, 390 ohm, 1/2W
R690	24552391	OMF, 390 ohm, 1/2W
R701	24872221	Chip, 220 ohm, 1/16W
R702	24872221	Chip, 220 ohm, 1/16W
R707	24872100	Chip, 10 ohm, 1/16W
R708	24872100	Chip, 10 ohm, 1/16W
R709	24872100	Chip, 10 ohm, 1/16W
R710	24872100	Chip, 10 ohm, 1/16W
R711	24872100	Chip, 10 ohm, 1/16W
R712	24872100	Chip, 10 ohm, 1/16W
R713	24872100	Chip, 10 ohm, 1/16W
R714	24872100	Chip, 10 ohm, 1/16W
R715	24872153	Chip, 15k ohm, 1/16W
R716	24872103	Chip, 10k ohm, 1/16W
R717	24872822	Chip, 6200 ohm, 1/16W
R718	24872152	Chip, 1500 ohm, 1/16W
R720	24872103	Chip, 10k ohm, 1/16W
R721	24872223	Chip, 22k ohm, 1/16W
R722	24872222	Chip, 2200 ohm, 1/16W
R725	24872754	Chip, 750k ohm, 1/16W
R727	24871221	Chip, 220 ohm, 1/8W
R728	24872393	Chip, 39k ohm, 1/16W
R729	24872153	Chip, 15k ohm, 1/16W
R735	24872911	Chip, 910 ohm, 1/16W
R736	24872911	Chip, 910 ohm, 1/16W
R737	24872152	Chip, 1500 ohm, 1/16W
R738	24872332	Chip, 3300 ohm, 1/16W
R739	24872362	Chip, 3600 ohm, 1/16W
R740	24872911	Chip, 910 ohm, 1/16W
R741	24872911	Chip, 910 ohm, 1/16W
R742	24872152	Chip, 1500 ohm, 1/16W
R743	24872332	Chip, 3300 ohm, 1/16W
R744	24872362	Chip, 3600 ohm, 1/16W
R745	24872911	Chip, 910 ohm, 1/16W
R746	24872911	Chip, 910 ohm, 1/16W
R747	24872152	Chip, 1500 ohm, 1/16W
R748	24872332	Chip, 3300 ohm, 1/16W
R749	24872362	Chip, 3600 ohm, 1/16W
R750	24872911	Chip, 910 ohm, 1/16W
R751	24872911	Chip, 910 ohm, 1/16W
R752	24872152	Chip, 1500 ohm, 1/16W
R753	24872332	Chip, 3300 ohm, 1/16W
R754	24872362	Chip, 3600 ohm, 1/16W
R755	24872911	Chip, 910 ohm, 1/16W
R756	24872911	Chip, 910 ohm, 1/16W
R757	24872152	Chip, 1500 ohm, 1/16W
R758	24872332	Chip, 3300 ohm, 1/16W
R759	24872362	Chip, 3600 ohm, 1/16W
R760	24872911	Chip, 910 ohm, 1/16W
R761	24872911	Chip, 910 ohm, 1/16W
R762	24872152	Chip, 1500 ohm, 1/16W
R763	24872332	Chip, 3300 ohm, 1/16W
R764	24872362	Chip, 3600 ohm, 1/16W
R778	24872101	Chip, 100 ohm, 1/16W
R779	24872101	Chip, 100 ohm, 1/16W
R780	24872101	Chip, 100 ohm, 1/16W
R781	24872101	Chip, 100 ohm, 1/16W
R782	24872101	Chip, 100 ohm, 1/16W
R783	24872101	Chip, 100 ohm, 1/16W
R786	24872472	Chip, 4700 ohm, 1/16W
R787	24872472	Chip, 4700 ohm, 1/16W

Location No.	Part No.	Description
△R801	24009954	Metal-Glazed Resistor, 2.2M ohm, 1/2W
△R802	24009954	Metal-Glazed Resistor, 2.2M ohm, 1/2W
R803	24384223	OMF, 22k ohm, 3W
R804	24545109	FR, 1 ohm, 1/4W
R805	24366101	CF, 100 ohm
R805	24007061	Cement, 1.8 ohm, ±10%, 2W
R807	24007065	Cement, 4.7 ohm, 5W
R808	24552472	OMF, 4700 ohm, 1/2W
R812	24381103	OMF, 10k ohm, 1/2W
R813	24366182	CF, 1800 ohm
R814	24366122	CF, 1200 ohm
R815	24552102	OMF, 1k ohm, 1/2W
R816	24323689	MF, 6.8 ohm, 2W
R818	24322278	MF, 0.27 ohm, 1W
R819	24321568	MF, 0.56 ohm, 1/2W
R821	24366101	CF, 100 ohm
R822	24321568	MF, 0.56 ohm, 1/2W
R824	24366472	CF, 4700 ohm
R825	24366153	CF, 15k ohm
R827	24366102	CF, 1k ohm
R828	24366562	CF, 5600 ohm
R829	24322278	MF, 0.27 ohm, 1W
R830	24569181	Cement, 180 ohm, 10W
R831	24383152	OMF, 1500 ohm, 2W
R832	24383152	OMF, 1500 ohm, 2W
R836	24366101	CF, 100 ohm (U901)
R836	24545620	FR, 62 ohm, 1/4W (U401)
R837	24000145	MF, 330 ohm, ±1%, 1/4W
R838	24366103	CF, 10k ohm
R840	24366681	CF, 680 ohm
R842	24381471	OMF, 470 ohm, 1/2W
R843	24552561	OMF, 560 ohm, 1/2W
R847	24366103	CF, 10k ohm
R848	24366472	CF, 4700 ohm
R849	24366472	CF, 4700 ohm
R850	24545109	FR, 1 ohm, 1/4W
R851	24545109	FR, 1 ohm, 1/4W
R861	24569229	Cement, 2.2 ohm, 10W
R862	24384223	OMF, 22k ohm, 3W
R863	24383180	OMF, 18 ohm, 2W
R864	24366101	CF, 100 ohm
R865	24323518	OMF, 0.51 ohm, 2W
R866	24552102	OMF, 1k ohm, 1/2W
R867	24321568	MF, 0.56 ohm, 1/2W
R868	24552103	OMF, 10k ohm, 1/2W
R869	24386272	CF, 2700 ohm
R870	24366122	CF, 1200 ohm
R871	24386272	CF, 2700 ohm
R872	24366392	CF, 3900 ohm
R879	24366102	CF, 1k ohm
R882	24366472	CF, 4700 ohm
R883	24366472	CF, 4700 ohm
R884	24366472	CF, 4700 ohm
R885	24366472	CF, 4700 ohm
R886	24366472	CF, 4700 ohm
R887	24552162	OMF, 1600 ohm, 1/2W
R889	24366102	CF, 1k ohm
R890	24382333	OMF, 33k ohm, 1W
R892	24552471	OMF, 470 ohm, 1/2W
R893	24552561	OMF, 560 ohm, 1/2W
R894	24366562	CF, 5600 ohm
R895	24531120	FR, 12 ohm, 1/2W

Location No.	Part No.	Description
R896	24366102	CF, 1k ohm
R897	24366101	CF, 100 ohm
R898	24366681	CF, 680 ohm
△ R899	24005007	Metal-Glazed Resistor, 8.2M ohm, 1W
R901	24366101	CF, 100 ohm
R902	24366101	CF, 100 ohm
R903	24942102	CC, 1000pF, 1/2W
R904	24366102	CF, 1k ohm
R905	24366151	CF, 150 ohm
R906	24366471	CF, 470 ohm
R907	24327131	MF, 130 ohm, ±1%, 1/4W
R908	24366430	CF, 43 ohm
R909	24366300	CF, 30 ohm
R911	24366101	CF, 100 ohm
R912	24366101	CF, 100 ohm
R913	24942102	CC, 1000pF, 1/2W
R914	24366102	CF, 1k ohm
R915	24366121	CF, 120 ohm
R916	24366471	CF, 470 ohm
R917	24327131	MF, 130 ohm, ±1%, 1/4W
R918	24366430	CF, 43 ohm
R919	24366300	CF, 30 ohm
R921	24366101	CF, 100 ohm
R922	24366101	CF, 100 ohm
R923	24942102	CC, 1000pF, 1/2W
R924	24366102	CF, 1k ohm
R925	24366151	CF, 150 ohm
R926	24366471	CF, 470 ohm
R927	24327270	MF, 27 ohm, ±1%, 1/4W
R928	24366430	CF, 43 ohm
R929	24366300	CF, 30 ohm
R931	24555153	OMF, 15k ohm, 3W
R932	24555153	OMF, 15k ohm, 3W
R933	24000929	FR, 1.5 ohm, 2W
R934	24942121	CC, 120 ohm, 1/2W
R935	24366150	CF, 15 ohm
R941	24555153	OMF, 15k ohm, 3W
R942	24555153	OMF, 15k ohm, 3W
R943	24366103	CF, 10k ohm
R944	24366120	CF, 12 ohm
R945	24366101	CF, 100 ohm
R951	24555153	OMF, 15k ohm, 3W
R952	24555153	OMF, 15k ohm, 3W
R953	24366390	CF, 39 ohm
R954	24366221	CF, 220 ohm
R955	24366151	CF, 150 ohm
R957	24366821	CF, 820 ohm
R961	24366821	CF, 820 ohm
R962	24366391	CF, 390 ohm
R963	24366222	CF, 2200 ohm
R964	24366332	CF, 3300 ohm
R965	24366471	CF, 470 ohm
R966	24366821	CF, 820 ohm
R967	24366122	CF, 1200 ohm
R968	24366101	CF, 100 ohm
R969	24366103	CF, 10k ohm
R970	24366222	CF, 2200 ohm
R971	24367152	CF, 1500 ohm, ±2%
R972	24367471	CF, 470 ohm, ±2%
R973	24367681	CF, 680 ohm, ±2%
R974	24367681	CF, 680 ohm, ±2%
R975	24366242	CF, 2400 ohm
R976	24367682	CF, 560 ohm, ±2%

Location No.	Part No.	Description
R977	24367152	CF, 1500 ohm, ±2%
R978	24367681	CF, 680 ohm, ±2%
R7707	24366472	CF, 4700 ohm
R7708	24366472	CF, 4700 ohm
R7710	24555680	OMF, 68 ohm, 3W
R7711	24323229	MF, 2.2 ohm, 2W
R7712	24366472	CF, 4700 ohm
R7713	24366472	CF, 4700 ohm
R7715	24555680	OMF, 68 ohm, 3W
R7716	24323229	MF, 2.2 ohm, 2W
R7717	24366472	CF, 4700 ohm
R7718	24366472	CF, 4700 ohm
R7720	24555680	OMF, 68 ohm, 3W
R7721	24323229	MF, 2.2 ohm, 2W
R7722	24366472	CF, 4700 ohm
R7723	24366472	CF, 4700 ohm
R7725	24555680	OMF, 68 ohm, 3W
R7726	24323229	MF, 2.2 ohm, 2W
R7727	24366472	CF, 4700 ohm
R7728	24366472	CF, 4700 ohm
R7730	24555680	OMF, 68 ohm, 3W
R7731	24323229	MF, 2.2 ohm, 2W
R7732	24366472	CF, 4700 ohm
R7733	24366472	CF, 4700 ohm
R7735	24555680	OMF, 68 ohm, 3W
R7736	24323229	MF, 2.2 ohm, 2W
R7738	24554101	OMF, 100 ohm, 2W
R7741	24366102	CF, 1k ohm
R7742	24366681	CF, 680 ohm
R7743	24366223	CF, 22k ohm
R7744	24366102	CF, 1k ohm
R7745	24366152	CF, 1500 ohm
R7746	24366223	CF, 22k ohm
R7747	24366222	CF, 2200 ohm
R7749	24366331	CF, 330 ohm
R7750	24323278	MF, 0.27 ohm, 2W
R7751	24366471	CF, 470 ohm
R7757	24366223	CF, 22k ohm
R7758	24366222	CF, 2200 ohm
R7763	24366471	CF, 470 ohm
R7764	24366331	CF, 330 ohm
R7765	24339398	MF, 0.39 ohm, 2W
R7766	24366223	CF, 22k ohm
R7767	24366562	CF, 5600 ohm
R7768	24366102	CF, 1k ohm
R7771	24366102	CF, 1k ohm
R7772	24366102	CF, 1k ohm
R7774	24554151	OMF, 10k ohm, 2W
R7775	24366273	CF, 27k ohm
R7776	24366472	CF, 4700 ohm
R7777	24366273	CF, 27k ohm
R7778	24366472	CF, 4700 ohm
R7779	24366102	CF, 1k ohm
R7780	24366102	CF, 1k ohm
R7781	24366333	CF, 33k ohm
R7782	24339828	OMF, 0.82 ohm, 2W
R7783	24366331	CF, 330 ohm
R7784	24369471	CF, 470 ohm
R7785	24368222	CF, 2200 ohm
R7786	24366103	CF, 10k ohm
R7787	24366104	CF, 100k ohm
R7788	24366103	CF, 10k ohm
R7789	24366471	CF, 470 ohm
R7790	24552182	OMF, 1800 ohm, 1/2W